

Examining the Effect of Social Media Communication on Brand Equity Creation

Yang He

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By: Yang HE

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Signed by the final examining committee:

\_\_\_\_\_  
*Frederick Davis* Chair

\_\_\_\_\_  
*Onur Bodur* Examiner

\_\_\_\_\_  
*Tieshan Li* Examiner

\_\_\_\_\_  
*Bianca Grohmann* Supervisor

Approved by \_\_\_\_\_  
Chair of Department or Graduate Program Director

\_\_\_\_\_  
Dean of Faculty

Date \_\_\_\_\_

## **ABSTRACT**

### **Examining the Effect of Social Media Communication on Brand Equity Creation**

Yang HE

This research examines the effects of social media communication on brand equity creation. It focuses on the differential effects of firm-generated content versus user-generated content on consumer-based brand equity dimensions (brand awareness, associations, and image), brand attitude, and purchase intentions in a social media context, and investigates the moderating role of brand type (i.e., hedonic or utilitarian brand). Results of a study involving adult consumers suggest that firm-generated content positively and significantly relates to brand awareness, brand associations and brand image, whereas user-generated content positively and significantly relates to brand associations and brand image. The moderation results did not support expected effects. This research sheds new lights in the online marketing literature and social media marketing practice.

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## INTRODUCTION

Social media is developing at a rapid pace and on a world scale. As the latest social media statistics published by Digital Insight (2014), Facebook alone, there are now over 1.28 billion monthly active users and the total users is still counting. It is getting more and more popular in all over the world and has changed the way information transfer. Under this open environment, the way brand and consumer interacting with each other is undergoing tremendous change. Instead of receiving unidirectional messages from brands, individual can now be in touch with brands in anytime and from anywhere through social media communication, such as comment on brand post, create conversation with brands or others, and search for information on demand.

In the industry report published by Social Media Examiner (2014), 94 percent of survey participants has entered this platform to market their business. Social media marketing (SMM) has become one of the most important components of marketing strategies. Through this new media, brands create content that keeps their customers posted, generate conversation and response to comments quickly. The multi-way interaction enables consumers to engage in the construction of brand stories and create their own brand experience. Social media marketing has turned the marketing world. It raises challenges for marketers to create and control brand message in a different way.

Today, if a consumer types the brand name into Google search, the top five listing will not just include the corporate webpage, but also the corresponding encyclopedia Wikipedia, where people can read about the corporate profile together with crisis that firm may want to hide. For example, consumers can read about Firestone Tire and Rubber Company being accused of using child labor in its factory (Kaplan and Haenlein 2010). In Wikipedia, the participation of firms is

officially forbidden. Therefore, all the user-edited contents are far out of firm's control and supervision. Imagine also the comments posted by online users under brand post in Facebook or Twitter. Most of them are personal thoughts that in no way brands can control. The varying influence of consumer-created content and firm-created content is especially highlighted in the social media context.

However, in current literature and practice, a lack of understanding regarding what stories brand can create, the forms they can take, and in what extent such content play on brand merits, has caused reluctant strategy and misallocated resource. To help address this gap in knowledge, this research will look into the effects of communication through social media, especially the firm-generated and user-generated content, on marketing outcomes. Moreover, the interrelationship of brand equity will be addressed, which finally leads to purchase intention, as the outcome of SMM. Besides, we will also explore the moderation effect of a brand's hedonic or utilitarian property on the relationship.

## **CONCEPTUAL FRAMEWORK**

### **Social Media**

Social media is defined as 'a group of internet based applications that build on the ideological and technological foundations of Web2.0, and it allows the creation and exchange of user-generated content' (Kaplan and Haenlein 2010, 61). It takes various forms, including blogs and micro blogs (e.g., Twitter), social networking sites (e.g., Facebook, MySpace), virtual social worlds (e.g., Second Life), collaborative projects (e.g., Wikipedia), content communities (e.g., YouTube), and virtual game worlds (e.g., World of Warcraft) (Kaplan and Haenlein 2010; Peters et al. 2013).

Compared to one-way transmission in traditional media, the multidimensional diffusion feature of social media has enable consumers to talk and exchange ideas to numerous others in the world. In the traditional communications paradigm, commercial messages and communication process are mostly controlled by brands and its paid agents. Information transmitted outside this paradigm is largely through face-to-face, words of mouth communication among individual, which has had bounded influence on the active marketplace due to its limited dissemination (Mangold and Faulds 2009). However, in the era of social media, brand's control of content and communication process largely resides outside of the organization. The multi-vocal nature of social media has empowered consumers to create and share brand-related stories at any time and from anywhere. Besides, the shift in the information control paradigm has placed tremendous change on the way consumers receive and react to the branded information. On social media platform, consumers are entitled to choose the information sender. Besides, they are free to block the information once it does not meet their needs. The revolution has had dramatic influence on consumer behavior. It empowers consumers with the right to create and participate in marketplace (Mangold and Faulds, 2009). Consequently, marketers should realize that brand communication will cease to be solely generated by the company, but increasingly by consumers themselves as user-generated content.

Early studies about social media lay emphasis on the effects of word of mouth (WOM). From Brown et al.'s (2007) study, findings showed that online community WOM has a stronger impact on product judgments, attitude formation, and decision making than traditional marketing communications. In another study conducted by Trusov et al. (2009), social media word-of-mouth positively influence membership growth and have a substantially longer carryover effect than traditional marketing activities. Several studies have attempted to differentiate the impact of

social media with traditional media. The unit of sales influenced by traditional media has proved to be larger than that by social media. However, the greater interactive activities through social media have a comparable effect to traditional media in the case of blogs and online communities (Stephen 2010). Besides, a recent study investigated the effect sizes of traditional media and social media communications on different facets of brand equity demonstrates that social media communications have a stronger positive influence on brand image compared to traditional media, whereas traditional media exert a stronger impact on brand awareness (Bruhn et al. 2012). Together, these studies differentiate the impact of social media as a new communicational channel. Clearly, theoretical research into how individual, organization or brand interacting with each other in this network is needed. Besides, the corresponding marketing strategies may call for practitioners' concern.

### **Firm-generated Content versus User-generated Content**

Schema Theory provides the theoretical foundation for the relationship between communication stimuli and brand equity, by demonstrating that consumers compare communication stimuli with their existing knowledge of comparable communication activities (Bruhn et al. 2012). Moreover, existing literature on information search and decision making has documented that consumers consciously differentiate between information senders, thereby leads to different response to the message (Chaiken 1980; Oreilly 1982). Therefore, social media content as communication stimuli are expected to have influence on consumers' perception of the brand. It is crucial to differentiate between information senders and examine their impact on brands separately.

In our research, attention is given to differentiate the influence of content created by brand versus consumer through social media activities. Firm-generated content aims to create and

strengthen consumers' relationship with the brand by providing a theme for conversations, between consumers and firms (i.e., brand owners) and among consumers themselves (Gensler et al. 2013). Such conversations enable consumers to integrate their own brand-related experiences and thoughts into the brand story. According to Singh and Sonnenburg (2012), brand stories can help build awareness, comprehension, empathy, recognition, recall and provide meaning to the brand. Traditionally, these brand stories spread through one-to-many marketing communications, such as traditional advertising. Similar to traditional brand story, firm-created content posted on social media is the message marketers created to draw attention from consumers, stay in touch with their 'fans' and enhance brand value.

Unlike the dominant role brands play in firm-created content, consumer-generated brand stories interpret past or anticipated brand experiences, which can be both positive and negative (Gensler et al. 2013). Because social networks are digital, visible, ubiquitous, and available in anytime and anywhere, user-generated content posted on social media is much more impactful than stories spread through traditional channels (Hennig-Thurau et al. 2010). Moreover, control of such brand-related information spreading over the world is an extremely difficult task for marketers. The popularity of social media has raised a great challenge for nowadays branding activities.

Several studies have investigated the influence of firm-created content and user-generated content. In Jank and Ghose's (2008) book, they examined the economic impact of user-generated and firm-published online content. They found that a significant portion of this content has concrete economic value that is embedded within it. Besides from analyzing the impact of numeric information, marketers can extract the specific social information that is captured in conversation between individuals and estimate the costs incurred by individuals during using

internet, such as costs of locating and processing information and decision-making costs of adjusting information. By producing novel ways of measuring the value of user-generated online content, the research activities have made actionable recommendations for practitioners to improve the design of feedback systems and display of information in online markets. Through the analysis of economic effects of user-generated and firm-published online content, brands display information efficiently by minimizing the overload information on consumers but maximizing profits. This study has provided a comprehensive overview of online content and generated significant and useful managerial implications.

Bruhn et al. (2012) examined the relative impact of traditional media and social media on brand equity creation. Results showed that firm-created social media communication have an important impact on functional brand image, while user-generated social media communication exerts a major influence on hedonic brand image. The explanation of this result is that consumers consciously differentiate between the sources of information. This study further confirmed consumers as influential source of information transmission in the social media platform. Although results show that the effect of user-generated social media on functional benefit is insignificant. This can be due to the coexistence of positive and negative comments in brand communities. Therefore, both firm- and user-created content are important in SMM; however, each possesses respective impact on brand image. In short, Bruhn et al.'s study has provided a valuable conceptual framework for this research to build on. The influence of different information senders on brand equity has been differentiated. However, a broader spectrum of industries or brands can be looked into in future studies. Besides, this research also leads us to further examine the distinct influence by firm-/user-generated content on brand equity creation with potential moderators.

In the research conducted by Hautz et al. (2014), they specifically looked into the difference between user-generated video and agency-generated video, and their effects on consumers' perceptions and intended behaviors. Results showed that user-generated videos have a higher degree of source credibility and therefore exert more important influence on consumers' intended behavior.

Overall, previous studies have analyzed the function of firm-created and consumer-generated content and emphasized on their significant role in marketing communications as well as brand management. However, in the context of social media, research still needs to distinct senders of content and their impacts on key marketing outcomes. In line with the former studies, this paper will specifically examine the relationship between social media communication and consumer-based brand equity generation.

## **Brand Equity**

The concept of brand equity emerged in the early 1990s. A considerable amount of literature has been published on brand equity through decades of development. In Aaker's book published in 1991, he defined brand equity as "the set of brand assets and liabilities linked to a brand's name and symbol, which adds to or subtracts from the value provided by a product or service to a firm and/or that firm's customers" (Aaker 1991, 15). It is the key element to differentiate one brand from its competitors. Besides, he proposed that there are five facets under brand equity, including brand awareness, perceived quality, brand associations, brand loyalty and other proprietary brand assets. Another main stream is Keller's research, which emphasizes on brand knowledge. His definition of brand equity is "the differential effect of brand knowledge on consumer response to

the marketing of the brand” (Keller 1993, 2). Brand image and brand awareness are two key components of brand equity.

Though receiving considerable attention, no consensus has made about which are the best measurement of brand equity to capture its complex and multidimensional construct (Maio Mackay 2001; Raggio and Leone 2007). Some examine brand equity on the perspective of finance, which measure the value of the brand (Simon and Sulliva 1993; Rego et al. 2009). Others look into it from the perspective of individual consumer (Keller 1993; Yoo et al. 2000; Fischer et al. 2010). This study will adopt the latter angle and analyze brand equity from a cognitive psychological approach, namely the consumer-based brand equity.

Considerable efforts have been made to conceptualize and measure different dimensions under CBBE across a wide range of contexts (Romaniuk et al. 2010). Buil et al. (2008) found that brand equity dimensions are inter-related. Brand awareness has a positive influence on perceived quality and brand associations, which in turn influence brand loyalty. They also found that perceived quality has a negative influence on brand loyalty. Similarly, Im et al. (2012) examined the relationship among brand awareness, brand image, brand association, and brand loyalty. They found that only brand image and brand association positively affect brand loyalty. Besides the fundamental dimensions of CBBE, brand equity can also be examined by incorporating with attitudes toward a brand, brand personality traits, and perceived quality ratings (Aaker 1997; Buil et al. 2008).

The customer mindset has been identified as everything that exists in the minds of customers with respect to a brand, such as thoughts, feelings, experience, image, perception, beliefs and attitudes (Keller and Lehmann 2003). Through marketing communication, brands tend to change



the way customers think about them by generating designed brand stories. In Keller and Lehmann's (2003) paper, customer mindset is measured by five key dimensions. The first is brand awareness, which means to what extent consumers recall and recognize the brand and can identify the products and services associated with it. The second dimension is brand association, which includes the strength, favorability, and uniqueness of the perceived attributes and benefits for the brand. Brand association often represents a key dimension in brand value; as it is the means by which consumers feel brands satisfy their needs. The next dimension is brand attitude, which is the overall evaluation of the brand based on its quality and the satisfaction it generates. The fourth dimension is brand attachment, namely how loyal the customer feels toward the brand. A strong level of brand attachments means resistance to change and the ability to cut off negative information. The fifth dimension is brand activity, the extent to which customers engage in the brand-related activities, including talking about the brand, seeking its information and exchange opinions with others.

Based on Keller and Lehmann's study, Bruhn et al. (2012) examined consumer's mindset under social media environment by containing brand awareness, brand image and brand attitude. They further divided brand image into functional brand image and hedonic brand image. Therefore, this research looked into the effect of brand awareness, functional and hedonic image on brand attitude. Result showed that brand awareness has the weakest impact on brand attitude compared to two typeset of brand image.

Overall, plenty of previous research has committed to examine brand equity, which can be investigated from the perspective of firm or consumer. Since this study focuses on consumers' perception of the overall SMM performed by brands, the consumer-based brand equity will be included. Therefore, CBBE in this case is consumers' evaluation about the brands' SMM. It will

be examined in terms of brand awareness, brand association, brand image, and finally leads to brand attitudes.

### **Purchase Intention**

Purchase intention is a psychological variable which has been classified as intervening variable between attitude and actual consumer behavior (Miniard et al., 1983). It refers to the plan to purchase a product or brand in the future. A considerable amount of literature has been published on purchase intention in an online environment (Park et al. 2007; Schlosser 2003; Schlosser et al. 2006; Bai et al. 2007).

Anderson et al. (2014) has examined the impact of hedonic and utilitarian motivations on consumer's purchase intention from the Facebook perspective. The results showed that time saving as one of the utilitarian motivations has direct effect on purchase intention. That is to say, consumers who turn to Retail Facebook Pages may be due to retailers who offer time saving factor. Moreover, by building customer loyalty through social media activities, the Retail Facebook Pages possibly drive to additional purchases. Yet the generalizability of this research is a main concern. Because it targeted at apparel retailers Facebook pages, the study could only be replicated to other types of retails to understand whether hedonic or utilitarian motivations are related to purchase.

Another study conducted by Wang et al. (2011) designed a survey to 292 respondents who had participated in communications about products through social media. Results showed that peer communication have a direct positive result on purchase decision and indirectly by strengthening product involvement. This result shed light on user-generated content through social media and its effects on purchase intent.

In addition, Kim and Ko (2010) have looked into the relationship between customer equity and purchase intent. They proved that through social media marketing activities, brand can strengthen customer relationship and purchase intent by improving customer equity drivers, which are value equity, relationship equity, and brand equity. Especially for purchase intent, value equity and brand equity have significant positive effects. However, the study was mainly focused on the Korean luxury consumers who were fans of the featured brand and advance in use of technology. Repeating the study to additional samples of consumers is necessary.

In contrary to the above findings, in Schlosser's (2003) research, he found that the drivers for favorable product attitudes do not necessarily lead to purchase intentions. It is object interactivity that leads to higher purchase intention in the online environment. Specifically, he explained that the congruency between users' goals and the delivery of product information will influence discursive processing and then increase the product attitudes; whereas for purchase intention, it is comparatively more affected by imagery process. Object interactivity evokes the vivid mental image of the product use and thus increase intention.

All in all, purchase intention has long been treated as an outcome variable to measure brand or firm marketing efforts. Previous studies have looked into various drivers of purchase intent, especially brand as an important cue to consumers' purchase intent. Additionally, this concept has been widely examined under an online environment, and in eWOM literatures. In our study, purchase intention is treated as a behavioral outcome, which is formed through consumers' mindset, after processing with branded information.

## **Hedonic or Utilitarian Brand**

To date, relatively large amount of literature has been published regarding consumers' motivation for hedonic products (Hirschman & Holbrook 1982), consumers' choice of hedonic or utilitarian products (Chitturi et al. 2007; Kivetz and Simonson 2002) and the role of hedonic or utilitarian motivation to consume goods (O'Brien 2010; Anderson et al. 2014). Generally speaking, the consumption of most products or services involves both hedonic and utilitarian dimensions (Batra and Ahtola 1990). Utilitarian goods, such as microwaves and personal computers, are mostly met with consumers' instrumental or functional needs. Conversely, hedonic goods, such as designer clothes and video games, are consumed for emotional benefits and experiential aspects of fantasy, fun, and pleasure (Smith et al. 2005). Thus, this dichotomy in marketing literature separating consumer's consumption of certain products or brands is based on either affective or cognitive assessment. Another study has shown that the assessment of hedonic brand depends on subjective content, which is emotion-driven; the assessment of utilitarian brand depends on objective information, which is cognitively-driven (Feiereisen et al. 2013). In our research, along with Feiereisen et al.'s (2013) study, a hedonic brand distinguishes itself from a utilitarian brand by consumers' attitude towards the brand. Hedonic brand is evaluated by consumers as how well it satisfies consumers' wants, whereas utilitarian brand is evaluated by consumers as the degree of usefulness and practicality.

In the traditional retail settings, consumers with hedonic objective have been proved to be more influenced by peers with strong rapport or social ties, whereas those with utilitarian shopping objective are more influenced by recommender's degree of expertise (Feick & Higie 1992). However, situation in the context of social media environment may be different. Several

studies have investigated the effects of a brand's hedonic or utilitarian value in the online marketing and eWOM literature.

Sen and Lerman (2007) have conducted several experiments to examine the differences between hedonic and utilitarian products in terms of evaluation about user-generated content (UGC). Findings showed that for hedonic products, consumers tend to regard the negative review as subjective bias from other reviewers; whereas for utilitarian products, consumers tend to attribute the negative feedback to the product itself. These findings shed light on individual's perception of UGC. As these reviews were generated by consumers, which are emotional basis, we can conclude that consumers are aware of consumer-generated content being biased; however, they constantly utilize such subjective content to assess hedonic products.

Integrated with Sen and Lerman's (2007) study, Hoffman and Daugherty (2013) further examined the elements of UGC for brands within the social media. Taking into account the consumer attention process within social media, findings supported that communication effectiveness is tied with both content of a message and delivery effectiveness. This study compared image-based versus text-based consumer-generated content on social media. Key findings suggested that consumer-generated text will evoke more attention in the case of hedonic products as opposed to utilitarian products. Together with Sen and Lerman's (2007) findings, we can conclude that consumers' perception of user-generated content is possibly influenced by the hedonic/ utilitarian feature of the product.

Besides, research conducted by Smith et al. (2005) has looked into the moderating effects of consumers shopping goal as utilitarian versus hedonic on the relationship between sources of information and decision making process. Results showed that consumer preference for peer

versus editorial recommendations depends on consumers shopping goal is utilitarian or hedonic. The level of expertise is valued as more important when the consumers have utilitarian shopping motivations than those with hedonic motivations. We can also conclude that consumers prefer recommendations from other consumers over professional reviews by critics, particularly for hedonic products (Jin 2012).

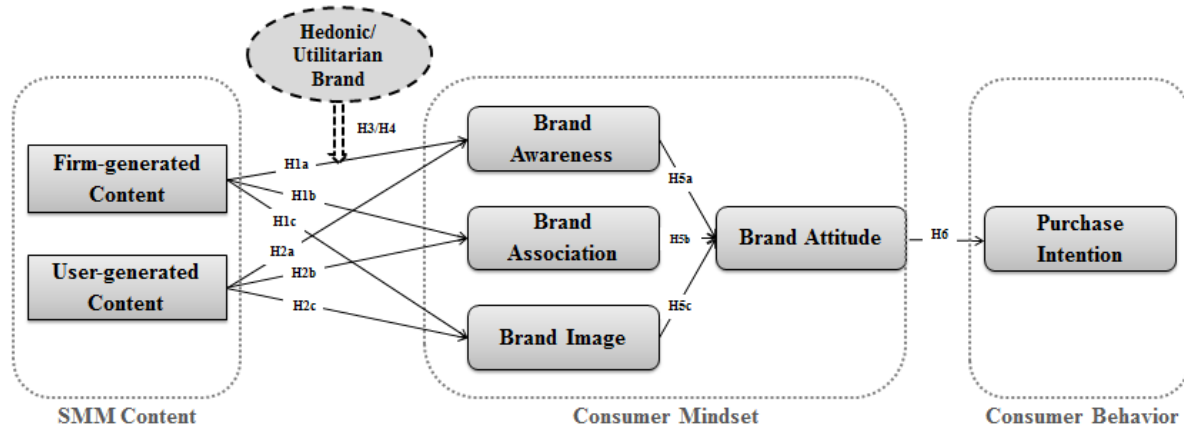
The studies presented thus far provide evidence that the impact of a brand's hedonic or utilitarian property is an essential dimension influencing communication effectiveness in the web context. Hedonic or utilitarian feature of a product or a brand affects consumers' attention to the information types; thereby it is possible that a moderating effect of brand's property (hedonic or utilitarian) will affect consumers' evaluation on branded-content and the brand itself. However, few studies have investigated in it. This research attempts to explore the moderation effect of hedonic/ utilitarian dimensions of brand on the relationship between social media communication and brand equity creation.

### **Summary of Conceptual Framework**

All in all, the current literature review demonstrates that, under social media environment, the construction of brands can be interpreted as a collective and co-creation process that consumers are highly involved. Moreover, though brand equity has been widely examined in previous marketing, there is mere discussion of brand equity in a social media context. This study will also look into consumer-based brand equity as SMM outcome and consumer behavior as reflected by purchase intention under social media context. In addition, we suggested that a brand's hedonic or utilitarian value may moderate the relationship. Our study will explore this potential moderator and help to address the research gap.

## HYPOTHESES

**FIGURE 1** shows the conceptual framework underlying this research. This study addresses how firm-generated content and consumer-generated content in social media activities influence brand equity creation. The researcher also hypothesizes the interrelationship among brand equity dimensions in consumer's mindset and examines purchase intention as behavioral outcome. In addition, a moderating effect of brand's feature as hedonic or utilitarian on the relationship between social media content and brand value will be tested in the research.



**Figure 1 Conceptual Model**

This model is built on Keller and Lehmann's (2003) brand value chain and Bruhn et al.'s (2012) conceptual framework. The basic structure of this model can be categorized into three sections: the first part is the source of brand-based communication through social media, including content created by firms versus consumers, and their effects on CBBE. Second, brand's feature as hedonic or utilitarian is presumed to moderate the relationship between communication content and CBBE formation. Finally, brand attitude as the evaluation of the former three equity dimensions (brand awareness, brand association, and brand image) and purchase intention as consumers' behavioral outcome are to be tested.

As the theoretical foundation of the relationship between communication and consumer-based brand equity, the Schema Theory (Eysenck 1984) demonstrates that consumers compare communication stimuli with their stored knowledge of comparable communication activities. Therefore, the perception of brands is formed through the process of the communication messages in consumers' mindset. A positive evaluation of the message will positively influence consumer's perception towards the brand. Specifically, we examine two types of message converted via social media communication, namely firm- and user-generated content. We assume that the messages created by different senders will influence consumers' evaluation about the brand.

**H1.** A positive evaluation of brand-based firm-generated social media content positively influences brand awareness (**H1a**), brand association (**H1b**) and brand image (**H1c**).

**H2.** A positive evaluation of brand-based user-generated social media content positively influences brand awareness (**H2a**), brand association (**H2b**) and brand image (**H2c**).

The effect of social media communication content on brand equity creation is moderated by brand's property as hedonic or utilitarian. As previous research findings into consumers with hedonic objective dependence on peers' review, whereas those with utilitarian objective dependence on recommender expertise (Feick & Higie 1992). Besides, previous studies (Sen and Lerman 2007; Hoffman and Daugherty 2013) in eWOM literature have indicated that consumers' perception of a brand's hedonic or utilitarian feature possibly affects their evaluation of brand-related content; consumers tend to use subjective cues to assess hedonic brands, while objective information is likely to be used to judge utilitarian brands. Together, we hypothesize that:

**H3.** Firm-generated content is more strongly related to brand awareness (H3a), brand association (H3b) and brand image (H3c) if the brand is utilitarian (versus hedonic).

**H4.** User-generated content is more strongly related to brand awareness (H3a), brand association (H3b) and brand image (H3c) if the brand is hedonic (versus utilitarian).

The overall evaluation of the brand is reflected by brand attitude. According to Fishbein and Ajzen (1975), brand attitude is a multiplicative function of the salient (cognitive) beliefs that a consumer has about the product or service and the evaluative (affective) judgment of those



beliefs. In this paper, brand attitude is proposed to be the overall evaluation on brands in consumers' mindset, which is influenced by brand awareness, brand association and brand image formed through processing content in social media.

**H5.** Brand awareness (**H5a**), Brand association (**H5b**) and brand image (**H5c**) positively influence brand attitude.

Finally, brand attitude formed through social media activity is expected to have influence on purchase intention. Attitude-behavior theory proposed by Fishbein and Ajzen (1975) has demonstrated that one's behavior is largely based on one's attitude. In a virtual world, study by Landers et al. (2015), has proved that consumer's attitude towards a brand positively influences his or her intention to purchase the brand's products. Collectively, we put forward the following hypothesis,

**H6.** Brand attitude positively influence purchase intention.

## METHODOLOGY

### Research Design and Procedures

Samples of the pretest survey and main study survey were presented in APPENDIX A. A preliminary test was designed to validate a list of brands which will be measured in the main study. The goal of this preliminary test was to verify consumers' familiarity of the selected brands and these brands' Facebook pages status. We selected the top 30 brands with most followers on Facebook, from the ranking published by Socialbakers's website (<http://www.socialbakers.com/>). We assumed that those brands with large amount of followers were showing good performance in SMM activities and their social media engagements were well perceived by consumers. A standardized online survey through Qualtrics.com was conducted to collect data.

The link to the survey was sent out through Facebook to invite respondents to take part in the survey. Participants were first asked to rate their familiarity with thirty selected brands on five-point scale, ranging from not at all familiar to extremely familiar. From the list of thirty brands,

the participants were then asked to select the brands they like or have previous liked on Facebook. When Facebook users like the brand page, they will start to receive updated content created by the brand or other users who also have liked the page (Schivinski and Dabrowski 2015). Therefore, we assumed that people who like a brand page or have previous liked the brand page on Facebook were exposed to the content generated by both firms and users.

The main study consisted of a  $2 \times 2$  between-subjects factorial design. Two types of contents (firm-generated content and user-generated content) and brands (hedonic brand and utilitarian brand) were manipulated as independent variables, generating four experimental conditions. A standardized online survey distributed through Qualtrics.com was conducted to collect data.

Participants were targeted by Qualtrics' panel before entering the survey. The screener criteria are 1) he or she must be a Facebook user, and 2) he or she must have liked on Facebook one of the thirty selected brands. When participants first entered the survey, they were asked to provide their consent to take part in the study. They were then asked to answer the screening questions again as to confirm their usage on Facebook. After that, the brand list verified from preliminary test was presented to participant. Participants were asked to indicate all the brands they like or have previously liked on Facebook. From each participant's selection of brands, one brand was randomly assigned to the participant. He or she answered the following questions regarding that brand. This procedure was to ensure that the participant had actually exposed to brand information posted by brand or other users, and was to assure participant not choosing a brand based on personal positive evaluation. Thus, we limited the choice of brands participant perceived on Facebook and randomized the actual brand for participant to evaluate in the survey.

## **Participants**

For the pretest, 65 respondents have entered the survey and 57 of them have actually completed. Table 1 gives an overview of the pretest sample demographics. For the main study, 260 respondents have taken part in the survey. Table 2 gives an overview of the sample demographics.

**Table 1 Pretest Sample Demography (N = 57)**

<i>Gender</i>	
Female	66.7%
Male	33.3%
<i>Age</i>	
18-20	5.3%
21-25	42.1%
26-30	33.3%
31-35	7.0%
36-40	0%
41-45	1.8%
>45	10.5%
<i>Education</i>	
Completed some high school	1.8%
High school graduate	3.5%
Completed some college	1.8%
Associate degree	0%
Bachelor's degree	31.6%
Completed some postgraduate	12.3%
Master's degree	47.4%
Doctorate degree	1.8%
<i>Employment</i>	
Full time employment	26.3%
Part time employment	14.0%
Unemployed	15.8%
Student	38.6%
Retired	1.8%
Other	3.5%
<i>Facebook usage</i>	
Never	0%
Rarely	12.3%
Several times a month	5.3%
Several times a week	8.8%
Daily	33.3%
Several times a day	40.4%
Others	0%
<i>How often do you use Facebook to connect with brands</i>	
Never	31.6%
Rarely	50.9%
Several times a month	15.8%
Several times a week	0%
Daily	1.5%
Several times a day	0%
Others	0%

**Table 2 Sample Demography (N = 260)**

<i>Gender</i>		
Female		68.1%
Male		31.9%
<i>Age</i>		
18-20		0.4%
21-25		5.4%
26-30		9.2%
31-35		13.8%
36-40		13.1%
41-45		8.5%
>45		49.6%
<i>Education</i>		
Completed some high school		1.5%
High school graduate		23.8%
Completed some college		21.2%
Associate degree		19.2%
Bachelor's degree		23.5%
Completed some postgraduate		2.7%
Master's degree		6.9%
Doctorate degree		1.2%
<i>Employment</i>		
Full time employment		49.2%
Part time employment		12.3%
Unemployed		14.2%
Student		1.9%
Retired		13.8%
Other		8.5%
<i>Facebook usage</i>		
Never		0.4%
Rarely		0.4%
Several times a month		2.3%
Several times a week		6.9%
Daily		30.0%
Several times a day		59.6%
Others		0.4%
<i>How often do you use Facebook to connect with brands</i>		
Never		0%
Rarely		7.3%
Several times a month		26.5%
Several times a week		26.2%
Daily		26.9%
Several times a day		13.1%
Others		0%

## Measurement

We drew on established scales used in the literature and adapted them to our research context. Specifically, six items for measuring firm-generated content and consumer-generated content were gathered from Bruhn et al.'s (2012) study. Ten items for measuring consumers' perception of a brand as hedonic or utilitarian were adapted from Voss et al.'s (2003) study. Last but not the least, thirteen items measuring brand equity were drawn from previous brand equity literature (Yoo et al. 2000; Netemeyer et al. 2004; Pappu et al. 2005, 2006; Scott and English 1989; Verhoef et al. 2004; Low and Lamb 2000; Villarejo-Ramos and Sa'nchez-Franco 2005) and three items measuring purchase intention were drawn from Grewal et al.'s (1998) study. All items were measured by seven-point Likert scale, ranging from 'strongly disagree' to 'strongly agree'. Reliability and validity of the measurements were assessed through Cronbach's  $\alpha$  and confirmatory factor analysis (CFA).

In terms of confirmatory factor analysis, we used maximum likelihood as extraction method and promax as rotation method. We first assessed Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, which showed a score of .927. This indicated that our data are likely to factor well based on correlation and partial correlation coefficients for all the variables. A total of 7 factors were extracted and explained 66.8% of the total variance. According to Hair et al. (1998), a sample size of 250 for significant factor loadings is at .35. Therefore, item 21 'I have a clear image of the type of person who would use the [brand]' and item 27 'I can reliably predict how [brand] will perform' had respectively low loadings ( $< .274$  and  $< .241$ ) on any factors. Notice that, we found that item 25 'In comparison to other brands, [brand] has high quality' and item 26 '[brand] has a rich history' were not loaded on the factors as we expected. Hence, multiple factor analyses were performed on each construct to diagnose whether there are problematic item loadings. Results show that all items in each construct were loading well in one factor. Together, as items were all drawn from established scales from previous literature, we determined to keep the scales as previous suggested.

Reliability analysis for each scale indicates that all constructs show acceptable reliability score, ranging from .794 to .949, except scale to measure brand image shows a relatively low Cronbach's  $\alpha$  (.596). Following the rules of thumb by George and Mallery (2003), Cronbach's  $\alpha$  around .6 is considered to be questionable. Therefore, the scale to measure brand image in our

study may be considered relatively low reliability. However, as previous mentioned, this scale was drawn from established study; we determined to keep it in our following analyses.

**Table 3 Inter-correlation and Descriptive Statistics of All Scales**

	Hedonic	Utilitarian	fg	ug	baw	bas	bim	bat	PI	Mean	SD	Cronbach's $\alpha$
Hedonic	1.00									5.60	1.00	.86
Utilitarian	.47	1.00								5.71	.93	.79
fg	.59	.48	1.00							5.72	.93	.87
ug	.56	.44	.74	1.00						5.58	.97	.87
baw	.32	.47	.47	.37	1.00					6.20	.76	.81
bas	.64	.59	.61	.62	.52	1.00				5.71	.98	.85
bim	.66	.52	.64	.60	.46	.70	1.00			5.79	.82	.60
bat	.61	.56	.58	.53	.43	.73	.71	1.00		5.99	1.01	.90
PI	.25	.38	.30	.20	.41	.40	.38	.51	1.00	6.30	1.18	.92

*Notes: N = 260; all coefficients are significant at  $p < .01$ ; Fg = firm-generated content; ug =user-generated content;*

*baw = brand awareness; bas = brand association; bim = brand image; bat = brand attitude; PI = purchase intention.*

## RESULTS

### Preliminary Test

A pretest was conducted to establish that the brands used in the main study would be sufficiently familiar to and followed by consumers. A total number of 57 respondents took part in the pretest that involved thirty brands. Familiarity was measured on a five-point semantic differential scale, and participants indicated which of the brands they followed.

Statistical analyses were performed using SPSS software (version 19). Familiarity levels of the thirty brands were generally higher than scale mid-point, but differed between brands (see Table 4); McDonald's had the highest familiarity level (mean = 4.70), whereas Monster Energy has the lowest familiarity (mean = 2.67). Additionally, we conducted repeated measure ANOVA to detect whether there was any overall difference between related means. Results showed that with a Greenhouse-Geisser correction, the mean scores for familiarity were statistically significantly different among brands ( $F(10.412, 583.057) = 15.721; p < .05$ ). A SPSS output of pairwise comparison of familiarity was listed in APPENDIX C.

**Table 4 Familiarity ratings and comparison to scale mid-point (3)**

Brand	Mean	Std. Deviation	t (df = 56)	Sig. (2-tailed)
McDonald's	4.70	.706	18.193	.000
Coca-Cola	4.67	.764	16.475	.000
Pepsi	4.49	.826	13.623	.000
Starbucks	4.49	.984	11.618	.000
Samsung Mobile	4.46	.946	11.533	.000
Converse	4.42	.944	11.439	.000
iTunes	4.40	.942	11.366	.000
KFC	4.35	1.009	11.246	.000
Skype	4.33	.873	10.111	.000
Dove	4.32	1.020	10.082	.000
Subway	4.32	1.038	9.735	.000
Walmart	4.32	1.020	9.735	.000
Amazon.com	4.28	.959	9.572	.000
Red Bull	4.25	1.106	8.499	.000
KitKat	4.16	1.177	7.999	.000
Pizza Hut	4.14	1.076	7.427	.000
Victoria's Secret	4.07	1.132	7.140	.000
Nutella	4.02	1.382	5.558	.000
Oreo	4.00	1.500	5.481	.000
adidas Originals	3.82	1.136	5.033	.000
NESCAFE	3.77	1.225	4.758	.000
Intel	3.70	1.210	4.380	.000
BlackBerry	3.67	1.244	4.046	.000
PlayStation	3.65	1.395	3.579	.001
Xbox	3.65	1.369	3.513	.001
Nike Football	3.60	1.307	3.445	.001
Skittles	3.49	1.571	2.360	.022
Pringles	3.40	1.602	1.902	.062
Sumsung Mobile USA	3.00	1.524	.000	1.000
Monster Energy	2.67	1.562	-1.611	.113

To validate the thirty brand pages on Facebook, the researcher analyzed the data using Multiple Response in SPSS and then simply displayed with frequency counts. Results showed the percentage of each brand being selected (see Table 5); 9.8% of the respondents reported that they like or have previously liked Starbucks on Facebook; 0.5% of the respondents like or have previously liked Pringles brand page and Monster Energy brand page on Facebook.

**Table 5 Facebook Brand Page ‘Like’ Descriptive Statistics**

Brand	Responses		Percent	Percent of Cases
	N			
Starbucks	18		9.80%	31.60%
Coca-Cola	17		9.30%	29.8%
Victoria's Secret	14		7.70%	24.60%
Amazon.com	11		6.00%	19.30%
Nike Football	8		4.40%	14.00%
Nutella	8		4.40%	14.00%
McDonald's	7		3.80%	12.30%
Samsung Mobile	7		3.80%	12.30%
KFC	7		3.80%	12.30%
iTunes	7		3.80%	12.30%
adidas Originals	7		3.80%	12.30%
Oreo	6		3.30%	10.50%
PlayStation	6		3.30%	10.50%
Converse	5		2.70%	8.80%
NESCAFE	5		2.70%	8.80%
Xbox	5		2.70%	8.80%
Red Bull	4		2.20%	7.00%
Pepsi	4		2.20%	7.00%
Walmart	4		2.20%	7.00%
Skype	4		2.20%	7.00%
BlackBerry	4		2.20%	7.00%
Subway	4		2.20%	7.00%
Pizza Hut	4		2.20%	7.00%
Dove	4		2.20%	7.00%
Intel	3		1.60%	5.30%
Skittles	3		1.60%	5.30%
KitKat	3		1.60%	5.30%
Samsung Mobile USA	2		1.10%	3.50%
Pringles	1		0.50%	1.80%
Monster Energy	1		0.50%	1.80%
Total	183		100.0%	321.1%

Taken together, the pretest results indicated that the brands selected for the main study are generally associated with high levels of familiarity and—to some extent—with a reasonable based of followers that could be recruited in the main study.

### **Hypothesis Tests: Direct Relations**

Multiple regressions were performed with uncentered variables. The standardized regression coefficients of the model were displayed in Table 6. Firm-generated social media content showed significantly positive effects on brand awareness, brand association, and brand image, which confirmed H1a, H1b, and H1c. User-generated social media content had a positive impact on both brand association and brand image, which confirmed H2b and H2c. Yet user-generated



social media content showed no significant effect on brand awareness; therefore, we rejected H2a ( $\beta = .031$ ,  $t = .487$ ,  $p\text{-value} = .627$ ).

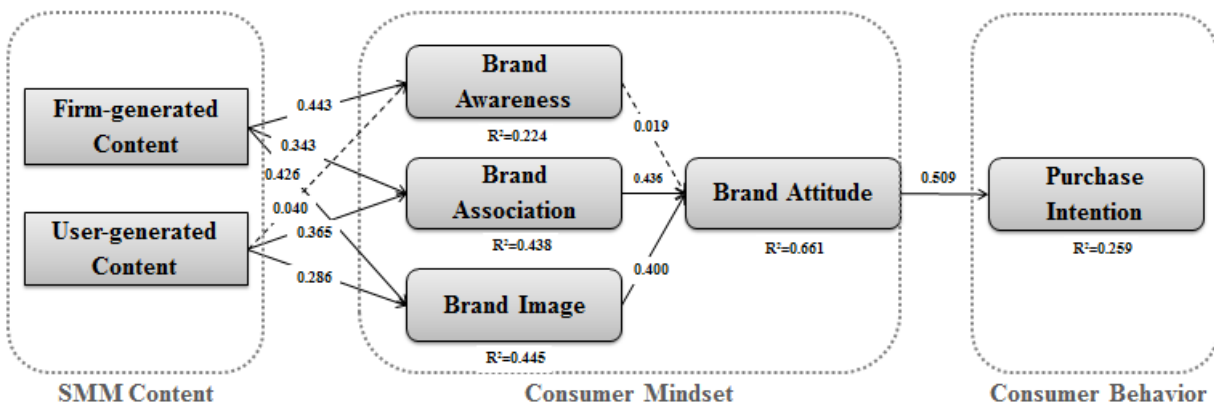
Moreover, both brand association and brand image showed significantly positive effects on brand attitude formation, supporting H5b and H5c. However, we found no significant effect between brand awareness and brand attitude, which failed to support H5a ( $\beta = .026$ ,  $t = .416$ ,  $p\text{-value} = .678$ ). Last but not least, brand attitude showed significantly positive influence on purchase intention, which supported our H6. The regression coefficients for the regression models without moderating effects were presented in Figure 2. The SPSS output of the regression coefficient is provided in APPENDIX D.

**Table 6 Standardized Regression Coefficients of the Model without Moderating Effects**

Hypotheses	Standardized regression coefficients	t	Support or rejection
H1a Firm-generated content → brand awareness	.443***	5.395	Supported
H1b Firm-generated content → brand association	.343***	4.911	Supported
H1c Firm-generated content → brand image	.426***	6.132	Supported
H2a User-generated content → brand awareness	.040	.487	Rejected
H2b User-generated content → brand association	.366***	5.226	Supported
H2c User-generated content → brand image	.286***	4.117	Supported
H5a Brand awareness → brand attitude	.019	.416	Rejected
H5b Brand association → brand attitude	.436***	7.556	Supported
H5b Brand image → brand attitude	.400***	7.205	Supported
H6 Brand attitude → purchase intention	.509***	9.486	Supported

Notes: \*\*\* $p\text{-value} < 0.001$ .

**Figure 2 Regression Coefficients for the Regression Models without Moderating Effects**



Notes: —→ significant effect; - -→ insignificant effect.

## Hypothesis Tests: Moderating Effects

Multiple regressions were performed with uncentered variables. The standardized regression coefficients for moderating effects were listed in Table 7. The coefficients for the interaction terms indicate that H3a, H3b, H3c, and H4a, H4b, H4c were not supported.

Specifically, the coefficient of interaction between firm-generated content and utilitarian brand as well as coefficient of interaction between firm-generated content and hedonic brand were -2.352 and 2.831, respectively, and statistically significant. However, since we hypothesized that firm-generated content was more strongly related to brand awareness (H3a) when the brand is utilitarian (versus hedonic), the observed interaction does not support H3a. An interpretation of these findings will be presented in the discussion section of this thesis. The SPSS output of the regression coefficient is provided in APPENDIX E.

**Table 7 Standardized Regression Coefficients for Moderating Effects**

Hypotheses	Standardized regression coefficients	t	Support or rejection
<i>Effects on brand awareness</i>			
H3a.Firm-generated content × utilitarian brand	-2.352**	-3.092	Rejected
Firm-generated content × hedonic brand	2.831***	3.946	
H4a.User-generated content × hedonic brand	-.425	-.503	Rejected
User-generated content × utilitarian brand	.782	1.041	
<i>Effects on brand association</i>			
H3b.Firm-generated content × utilitarian brand	.869	1.430	Rejected
Firm-generated content × hedonic brand	.789	1.376	
H4b.User-generated content × hedonic brand	-.521	-.770	Rejected
User-generated content × utilitarian brand	-1.117	-1.861	
<i>Effects on brand image</i>			
H3c.Firm-generated content × utilitarian brand	1.215	1.958	Rejected
Firm-generated content × hedonic brand	.864	1.475	
H4c.User-generated content × hedonic brand	-.360	-.521	Rejected
User-generated content × utilitarian brand	-1.004	-1.637	

Notes: \*p-value < .05; \*\*p-value < .01; \*\*\*p-value < .001.

## DISCUSSION

### General Discussion

This research investigated the relationship between social media communication and brand equity. We examined the specific effects of firm-generated and user-generated content of social media on marketing outcomes. Consumer-based brand equity and purchase intention were also measured, which lead to important implications for current social media marketing activities. The study was conducted in the form of online survey in which thirty brands on Facebook served as stimuli.

The results suggest that consumers' perceptions of the social media content created by brands positively relate to brand awareness, brand associations, and brand image. Consumers' perception of social media content generated by other users, on the other hand, positively related to brand associations and brand image. No significant relationship between user-generated content and brand awareness emerged. This is consistent with Bruhn et al.'s (2012) findings and was explained by the ambiguity of user-generated content. Unlike firm-generated content, which is designed to convey positive information to increase affirmative awareness about the brand, user-generated content can be both positive and negative. Therefore, the ambiguity of user-created content may offset its influence on brand awareness.

The current study also points to differential effects of firm- and user-generated content on brand equity. In line with schema theory (Eysenck 1984), which argues that consumers differentiate communication stimuli with their stored knowledge of comparable communication activities, consumers' evaluation of the brand is influenced by different information sources in different ways.

Another important finding was that among the dimensions of customer-based brand equity, both brand associations and brand image strengthened brand attitude, but brand awareness showed no directly influence on brand attitude in the social media context. Due to the ambiguity of user-generated content, it is possible that the insignificant relationship between user-generated content and brand awareness was reflected in a weak downstream relationship between brand awareness and brand attitude. This finding is consistent with previous study. Bruhn et al.'s (2012) found that in the tourism industry, user-generated social media content yielded an important

influence on brand awareness, and a subsequent positive relationship between brand awareness and brand attitude.

Finally, there was a significant positive relation between brand attitude and purchase intention. In line with previous literature on online marketing and eWOM (Jin 2012, Gensler et al. 2013, Schlosser 2013), we expected a positive relationship between attitude towards the brand and purchase intent. This result also demonstrates the potential role of social media in leading up to purchases, and ultimately, sales. This capacity is demonstrated by Facebook's role in promoting one of Coca-Cola's campaigns to wider audience, drive engagement, and achieve positive outcomes for the brand. Facebook reported that 27% of Coca-Cola's incremental sales were generated by Facebook, based on an investment of only 2% of the brand's gross media budget (<https://www.facebook.com>).

Unexpectedly, the hedonic or utilitarian nature of the brands only affected the relationship between firm-generated content and brand awareness. Specifically, firm-generated content was more strongly related to brand awareness when the brand was perceived to be hedonic; the relation between firm-generated content and brand awareness weakened when the brand was viewed as utilitarian. These moderating effects were contrary to our expectations. A possible explanation for this might be that branded information generated by hedonic brands is more entertaining and fun. It is possible that consumers therefore more easily remember the brand. As a result, when the brand is perceived to be hedonic, firm-generated content may be more effective in increasing brand awareness, compared to utilitarian brands.

## **Implications**

Nowadays, brands are not the only creators of brand stories and brand information. Co-existing user-generated content plays an important role in influencing brand equity (Bruhn et al 2012, Bruno and Dariusz 2015). This research sought to differentiate the effects of firm-generated and user-generated social media content on consumer-based brand equity, and subsequent brand attitude and purchase intention. The present study makes several contributions to the online marketing literature and social media marketing practice.

First and foremost, user-generated and firm-generated social media content differ in the extent to which they influence brand equity dimensions. This research shows that the social media

messages created by the brand are well perceived by consumers in the sense that they create brand awareness, strong brand associations, and a positive brand image. This increases brand attitudes and purchase intentions. Moreover, the brand-related content users generate on social media also exerts a positive influence on brand image and brand association. However, we should notice that user-generated content are not significantly related to brand awareness. Therefore, a newly launched brand, which should primarily focus on building brand awareness, should allocate their resources to providing social media content created by the firm itself, rather than fostering user-generated content creation.

Moreover, for hedonic brands, firm-generated content are more positively evaluated by consumers and have stronger effects on brand awareness, compared to utilitarian brands. In other words, compared to utilitarian brands, hedonic brands benefit more from firm-generated content. Therefore, it would be beneficial for hedonic brands to focus on firm-generated social media content, because consumers seem to more easily remember the brand based on firm-generated content.

Finally, social media communication leads to positive brand attitude and subsequent purchase intentions. It is important to note that both brand-created and consumer-created content influence brand equity positively, and enhance brand attitudes and purchase intentions. Therefore, both types of social media content have beneficial consequences.

To sum up, marketers can influence consumers' conversations about the brand by developing a platform for consumers to express their opinions about the brand, creating effective firm-created social media communication to stimulate user-generated content, and actively monitoring social media communications (Mangold and Faulds, 2009). It is essential to incorporate social media into branding strategy and marketing practices. Both firms and their marketing teams should focus on social media communications driven by both brands and users, because these positively relate to brand equity, attitude, and purchase intentions.

## Limitations and Further Research

There are several limitations of this study. Firstly, we only investigated in one social media platform (i.e., Facebook). The reason we chose Facebook is because it is the most commonly used social media platform (Social Media Marketing Industry Report, 2014). However, there are many forms of social media, such as twitter (a microblogging site), Instagram (picture sharing), and YouTube (video-based content). The cross-site content patterns and effects seem to differ significantly for brands (Smith et al., 2012). Hence, a broader range of social media platforms should be looked into in future studies.

It is also important to note a few methodological concerns. The reliability statistics of the brand image scale is relatively low, with a Cronbach's Alpha of around .60. Although we conducted further factor analyses to detect problematic loadings, all of the items loaded on one factor (factor loadings were all above .72). Given that the scales used in this research were established scales, use of the original scale seems warranted. Scale properties should be taken into account when assessing the results. Future studies can also consider replacing the scale or items under the scale to have better assessment. In addition, the weak relationship involving brand awareness could be due to the design of study. Since respondents who entered the survey were already screened by our screener criteria (participant has to like or have previously liked one of the thirty selected brands). That is to say, respondents were already aware of at least one of the selected brands, which could lead to the low variation in brand awareness measure. Thereby, we should take into account of the insufficient variation in brand awareness, and improve the study design or replace brand awareness with other brand equity facets for further research.

Furthermore, because we chose the thirty brands on Facebook based on the number of followers, we did not account for industry-specific effects in this research. Previous studies have discussed the role of industry on the social media content – consumer response relationship (Bruhn et al 2012, Bruno and Dariusz 2015). Future studies focusing on the role of industry could examine industry effects, for example, involving brands from the food retail industry, such as McDonald's, and brands from the luxury fashion industry, such as Louis Vuitton. By classifying brands into different industries, industry-specific effects of social media communications could be uncovered.

Besides, the results of familiarity levels of thirty brands in our pretest can be valuable if we examine a three-way interaction in the future study. Specifically speaking, we can compare the effects of the most familiar brands with the least familiar ones. It is possible that the familiarity levels of brands will interact with hedonic/ utilitarian brands, and moderate the relationship between social media communication and brand equity.

Finally, this research used a multi-dimensional conceptualization of consumer-based brand equity, but other conceptualizations of this construct exist and could be examined in future research. It is also likely that the influence of firm-generated and user-generated content on brand equity and subsequent consumer responses is moderated by factors not considered in the present research. For example, consumers' hedonic/ utilitarian motivations to use social media or product involvement may play an important role. The current research will hopefully provide a starting point for future inquiries into the effect of social media content.

## **APPENDIX A**

### **INFORMATION AND CONSENT TO PARTICIPATE IN A RESEARCH STUDY**

Study Title: Examining the Effect of Social Media Communication on Brand Equity Creation

Researcher: Yang He

Researcher's Contact Information: 514-242-1388 or Emma.ho@live.com

Faculty Supervisor: Bianca Grohmann, Professor of Marketing

Faculty Supervisor's Contact Information: 514.848.2424 extension 4845 or  
bianca.grohmann@concordia.ca

Source of funding for the study: Concordia University M.Sc. thesis grant

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

#### **A. PURPOSE**

The purpose of the research is to examine the effects of social media communication on brand equity creation.

#### **B. PROCEDURES**

If you participate, you will be asked to answer an online survey that contains questions about brands, brand communities and how you interact with them. The questionnaire also contains demographic questions for classification purposes. In total, participating in this study will take no more than fifteen minutes. As a research participant, your responsibilities would be to answer every question in the survey.

#### **C. RISKS AND BENEFITS**



I understand that there aren't any potential risks of participation. There may be compensation for my time as determined by Qualtrics.

#### D. CONFIDENTIALITY

We will gather the following information as part of this research: Gender, Age, Educational level, Employment status, and Facebook usage.

By participating, you agree to let the researchers have access to information about your answer to the survey. This information will be obtained from your answer to the questions within the survey.

We will not allow anyone to access the information, except people directly involved in conducting the research, and except as described in this form. We will only use the information for the purposes of the research described in this form.

To verify that the research is being conducted properly, regulatory authorities might examine the information gathered. By participating, you agree to let these authorities have access to the information.

The information gathered will be anonymous. That means that it will not be possible to make a link between you and the information you provide. We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

We will destroy the information five years after the end of the study.

#### F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time by simply closing your browser. Because the data is anonymous, we cannot withdraw your data once you have submitted the questionnaire.

There are no negative consequences for not participating or stopping in the middle.

#### G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

☐ I agree to participate

☐ I do not agree to participate

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or [oor.ethics@concordia.ca](mailto:oor.ethics@concordia.ca)

### Preliminary Test

1. Please indicate how familiar you are with the following brands:

Brand	1= not at all familiar	2 = slightly familiar	3 = somewhat familiar	4 = moderately familiar	5 = extremely familiar
1. Coca-Cola					
2. McDonald's					
3. Red Bull					
4. Nike Football					
5. Oreo					
6. Samsung Mobile					
7. KFC					
8. Converse					
9. PlayStation					
10. Starbucks					
11. Pepsi					
12. Walmart					
13. iTunes					
14. Skype					
15. Nutella					
16. BlackBerry					
17. NESCAFE					
18. Subway					
19. Victoria's Secret					
20. Amazon.com					
21. Pizza Hut					
22. Samsung Mobile USA					
23. Adidas Originals					
24. Pringles					
25. Intel					
26. Skittles					
27. KitKat					
28. Dove					
29. Monster Energy					
30. Xbox					

2. Please indicate which of the following brands you currently like or have previously liked on Facebook? Please select all that apply

- ☐ Coca-Cola
- ☐ McDonald's
- ☐ Red Bull
- ☐ Nike Football

- ☐ Oreo
- ☐ Samsung Mobile
- ☐ KFC
- ☐ Converse
- ☐ PlayStation
- ☐ Starbucks
- ☐ Pepsi
- ☐ Walmart
- ☐ iTunes
- ☐ Skype
- ☐ Nutella
- ☐ BlackBerry
- ☐ NESCAFÉ
- ☐ Subway
- ☐ Victoria's Secret
- ☐ Amazon.com
- ☐ Pizza Hut
- ☐ Samsung Mobile USA
- ☐ Adidas Originals
- ☐ Pringles
- ☐ Intel
- ☐ Skittles
- ☐ KitKat
- ☐ Dove
- ☐ Monster Energy
- ☐ Xbox

Please answer the following questions:

1. What is your gender?
  - ☐ Female
  - ☐ Male
  
2. Please select your age group
  - ☐ 18–20
  - ☐ 21–25
  - ☐ 26–30
  - ☐ 31–35
  - ☐ 36–40
  - ☐ 41–45

- Over 45 years old
3. What is your education level?
- Completed some high school
  - High school graduate
  - Completed some college
  - Associate degree
  - Bachelor's degree
  - Completed some postgraduate
  - Master's degree
  - Doctorate degree
4. What is your current employment status?
- Full time employment
  - Part time employment
  - Unemployed
  - Student
  - Retired
  - Other
5. How often do you use Facebook?
- Several times a day
  - Daily
  - Several times a week
  - Several times a month
  - Rarely
  - Other, please specify
- 
6. How often do you use Facebook to connect with brands?
- Several times a day
  - Daily
  - Several times a week
  - Several times a month
  - Rarely
  - Other, please specify
-

## Main Study

1. Do you use Facebook?
  - ☐ Yes
  - ☐ No
2. Have you liked or do you like any brand's Facebook account?
  - ☐ Yes
  - ☐ No
3. Please indicate which of the following brands you currently like or have previously liked on Facebook? Please select all that apply.
  - ☐ Coca-Cola
  - ☐ McDonald's
  - ☐ Red Bull
  - ☐ Nike Football
  - ☐ Oreo
  - ☐ Samsung Mobile
  - ☐ KFC
  - ☐ Converse
  - ☐ PlayStation
  - ☐ Starbucks
  - ☐ Pepsi
  - ☐ Walmart
  - ☐ iTunes
  - ☐ Skype
  - ☐ Nutella
  - ☐ BlackBerry
  - ☐ NESCAFE
  - ☐ Subway
  - ☐ Victoria's Secret
  - ☐ Amazon.com
  - ☐ Pizza Hut
  - ☐ Samsung Mobile USA
  - ☐ adidas Originals
  - ☐ Pringles
  - ☐ Intel
  - ☐ Skittles
  - ☐ KitKat
  - ☐ Dove
  - ☐ Monster Energy

- ☐ Xbox
- ☐ None of these

Please indicate your agreement with the following statements.

1. I think [brand] is exciting
  - ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree
2. I think [brand] is delightful
  - ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree
3. I think [brand] is fun
  - ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree
4. I think [brand] is thrilling
  - ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree

5. I think [brand] is boring
- ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree

6. I think [brand] is necessary
- ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree

7. I think [brand] is effective
- ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree

8. I think [brand] is functional
- ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree
  - ☐ Neither Agree nor Disagree
  - ☐ Somewhat Agree
  - ☐ Agree
  - ☐ Strongly Agree

9. I think [brand] is practical
- ☐ Strongly Disagree
  - ☐ Disagree
  - ☐ Somewhat Disagree



- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

10. I think [brand] is unhelpful

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

11. I am satisfied with the company's social media communications for [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

12. The level of the company's social media communications for [brand] meets my expectations

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

13. Compared with the very good social media communications of other companies, this company's social media communication for [brand] performs well

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree

- Agree
- Strongly Agree

14. I am satisfied with the social media communications expressed by other users about [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

15. The level of the social media communications expressed by other users about [brand] meets my expectation

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

16. Compared with the very good social media communications of other users about other brands, the social media communications of users about [brand] performs well

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

17. I easily recognize [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree

- Strongly Agree

18. Several characteristics of [brand] instantly come to my mind

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

19. I easily memorize the symbol/logo of [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

20. I have a very clear picture of [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

21. I have a clear image of the type of person who would use the [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

22. I like the company which makes [brand]

- Strongly Disagree
- Disagree

- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

23. I trust the company which makes [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

24. The company which makes [brand] has credibility

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

25. In comparison to other brands, [brand] has high quality

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

26. [brand] has a rich history

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree

- Strongly Agree

27. I can reliably predict how [brand] will perform

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

28. I have a pleasant idea of [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

29. [Brand] has a good reputation

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

30. I associate positive characteristics with [brand]

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

31. It is possible that I will buy [brand] in the future

- Strongly Disagree

- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

32. I will seriously consider purchasing [brand]

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

33. It is highly likely that I will buy [brand]

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Please answer the following questions:

7. What is your gender?

- ☐ Female
- ☐ Male

8. Please select your age group

- ☐ 18–20
- ☐ 21–25
- ☐ 26–30
- ☐ 31–35
- ☐ 36–40
- ☐ 41–45
- ☐ Over 45 years old

9. What is your education level?

- ☐ Completed some high school
- ☐ High school graduate
- ☐ Completed some college
- ☐ Associate degree
- ☐ Bachelor's degree
- ☐ Completed some postgraduate
- ☐ Master's degree
- ☐ Doctorate degree

10. What is your current employment status?

- ☐ Full time employment
  - ☐ Part time employment
  - ☐ Unemployed
  - ☐ Student
  - ☐ Retired
  - ☐ Other, please specify
- 

11. How often do you use Facebook?

- ☐ Several times a day
  - ☐ Daily
  - ☐ Several times a week
  - ☐ Several times a month
  - ☐ Rarely
  - ☐ Other, please specify
- 

12. How often do you use Facebook to connect with brands?

- ☐ Several times a day
  - ☐ Daily
  - ☐ Several times a week
  - ☐ Several times a month
  - ☐ Rarely
  - ☐ Other, please specify
- 

## APPENDIX B

<i>Measure</i>	<i>Source</i>
<i>Firm-created social media communication</i>	Bruhn et al. (2012)
I am satisfied with the company's social media communications for	

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[brand]	
The level of the company's social media communications for [brand] meets my expectations	
Compared with the very good social media communications of other companies, this company's social media communication for [brand] performs well	
<i>User-generated social media communication</i>	Bruhn et al. (2012)
I am satisfied with the social media communications expressed by other users about [brand]	
The level of the social media communications expressed by other users about [brand] meets my expectation	
Compared with the very good social media communications of other users about other brands, the social media communications of users about [brand] performs well	
<i>Hedonic or Utilitarian</i>	Voss et al. (2003)
I think [brand] is:	
Dull/Exciting	
Not Delightful/Delightful	
Not Fun/Fun	
Not Thrilling/Thrilling	
Boring/Interesting	
Necessary/Unnecessary	
Effective/Ineffective	
Functional/Not Functional	
Practical/Impractical	
Helpful/Unhelpful	
<i>Brand awareness</i>	Yoo et al.(2000)
I easily recognize [brand]	
Several characteristics of [brand] instantly come to my mind	
I easily memorize the symbol/logo of [brand]	
I have a very clear picture of [brand]	
<i>Brand associations</i>	Netemeyer et al. (2004), Pappu et al. (2005, 2006)
I have a clear image of the type of person who would use the [brand]	
I like the company which makes [brand]	
I trust the company which makes [brand]	
The company which makes [brand] has credibility	
<i>Brand image</i>	Davis et al. (2009)
In comparison to other brands, [brand] has high quality	
[brand] has a rich history	
I can reliably predict how [brand] will perform	
<i>Brand attitude</i>	Low and Lamb (2000), Villarejo-Ramos and Sa´nchez-Franco (2005)
I have a pleasant idea of [brand]	
[Brand] has a good reputation	
I associate positive characteristics with [brand]	
<i>Purchase intention</i>	Grewal et al.(1998)
It is possible that I will buy [brand] in the future	

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I will seriously consider purchasing [brand]

It is highly likely that I will buy [brand]

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## APPENDIX C

### Pairwise Comparisons

Measure: familiarity

(I) brand	(J) brand	Mean Difference (I-J)	Std. Error	Sig. <sup>a</sup>	95% Confidence Interval for Difference <sup>a</sup>	
					Lower Bound	Upper Bound
1	2	-.035	.035	1.000	-.181	.110
	3	.421	.128	.728	-.108	.950
	4	1.070 <sup>*</sup>	.185	.000	.301	1.839
	5	.667	.204	.801	-.179	1.512
	6	.211	.105	1.000	-.227	.648
	7	.316	.112	1.000	-.150	.782
	8	.246	.084	1.000	-.103	.594
	9	1.018 <sup>*</sup>	.165	.000	.333	1.702
	10	.175	.091	1.000	-.201	.552
	11	.175	.087	1.000	-.186	.537
	12	.351	.140	1.000	-.232	.934
	13	.263	.119	1.000	-.230	.756
	14	.333	.140	1.000	-.248	.915
	15	.649	.188	.466	-.131	1.430
	16	1.000 <sup>*</sup>	.135	.000	.441	1.559
	17	.895 <sup>*</sup>	.158	.000	.241	1.549
	18	.351	.116	1.000	-.130	.832
	19	.596	.150	.087	-.025	1.218
	20	.386	.132	1.000	-.161	.933
	21	.526	.148	.344	-.089	1.142
	22	1.667 <sup>*</sup>	.199	.000	.840	2.493
	23	.842 <sup>*</sup>	.134	.000	.285	1.399
	24	1.263 <sup>*</sup>	.195	.000	.455	2.071

	25	.965	.142	.000	.378	1.552
	26	1.175	.208	.000	.312	2.039
	27	.509	.153	.659	-.124	1.141
	28	.351	.131	1.000	-.194	.895
	29	2.000	.225	.000	1.066	2.934
	30	1.018	.167	.000	.325	1.710
2	1	.035	.035	1.000	-.110	.181
	3	.456	.125	.260	-.064	.976
	4	1.105	.182	.000	.352	1.859
	5	.702	.194	.276	-.102	1.506
	6	.246	.088	1.000	-.118	.609
	7	.351	.108	.826	-.096	.797
	8	.281	.078	.303	-.044	.605
	9	1.053	.161	.000	.384	1.721
	10	.211	.078	1.000	-.113	.535
	11	.211	.078	1.000	-.113	.535
	12	.386	.127	1.000	-.141	.913
	13	.298	.109	1.000	-.154	.750
	14	.368	.134	1.000	-.187	.924
	15	.684	.183	.184	-.073	1.441
	16	1.035	.130	.000	.496	1.574
	17	.930	.156	.000	.283	1.577
	18	.386	.099	.119	-.026	.798
	19	.632	.136	.009	.066	1.197
	20	.421	.117	.303	-.065	.907
	21	.561	.137	.060	-.007	1.130
	22	1.702	.194	.000	.898	2.506
	23	.877	.130	.000	.337	1.417
	24	1.298	.192	.000	.501	2.096
	25	1.000	.135	.000	.441	1.559

	26	1.211 <sup>+</sup>	.201	.000	.375	2.046
	27	.544	.144	.167	-.053	1.141
	28	.386	.117	.720	-.098	.870
	29	2.035 <sup>+</sup>	.215	.000	1.142	2.928
	30	1.053 <sup>+</sup>	.163	.000	.376	1.729
3	1	-.421	.128	.728	-.950	.108
	2	-.456	.125	.260	-.976	.064
	4	.649 <sup>+</sup>	.147	.020	.039	1.259
	5	.246	.189	1.000	-.540	1.031
	6	-.211	.122	1.000	-.716	.295
	7	-.105	.134	1.000	-.661	.451
	8	-.175	.137	1.000	-.745	.394
	9	.596 <sup>+</sup>	.125	.006	.079	1.114
	10	-.246	.113	1.000	-.713	.222
	11	-.246	.104	1.000	-.677	.186
	12	-.070	.141	1.000	-.656	.516
	13	-.158	.137	1.000	-.725	.409
	14	-.088	.147	1.000	-.696	.520
	15	.228	.206	1.000	-.628	1.084
	16	.579 <sup>+</sup>	.139	.048	.001	1.157
	17	.474	.168	1.000	-.224	1.171
	18	-.070	.125	1.000	-.588	.448
	19	.175	.172	1.000	-.537	.888
	20	-.035	.115	1.000	-.511	.440
	21	.105	.156	1.000	-.541	.751
	22	1.246 <sup>+</sup>	.194	.000	.439	2.052
	23	.421	.135	1.000	-.138	.980
	24	.842 <sup>+</sup>	.184	.011	.081	1.604
	25	.544	.135	.074	-.016	1.104
	26	.754	.208	.275	-.110	1.619

	27	.088	.168	1.000	-.611	.786
	28	-.070	.150	1.000	-.692	.552
	29	1.579 <sup>+</sup>	.192	.000	.782	2.376
	30	.596 <sup>+</sup>	.132	.014	.048	1.145
4	1	-1.070 <sup>+</sup>	.185	.000	-1.839	-.301
	2	-1.105 <sup>+</sup>	.182	.000	-1.859	-.352
	3	-.649 <sup>+</sup>	.147	.020	-1.259	-.039
	5	-.404	.226	1.000	-1.343	.536
	6	-.860 <sup>+</sup>	.178	.005	-1.597	-.122
	7	-.754	.183	.053	-1.512	.004
	8	-.825 <sup>+</sup>	.194	.036	-1.630	-.019
	9	-.053	.185	1.000	-.819	.713
	10	-.895 <sup>+</sup>	.188	.006	-1.676	-.113
	11	-.895 <sup>+</sup>	.167	.001	-1.589	-.201
	12	-.719	.187	.134	-1.495	.056
	13	-.807 <sup>+</sup>	.176	.011	-1.537	-.077
	14	-.737 <sup>+</sup>	.169	.024	-1.437	-.036
	15	-.421	.243	1.000	-1.427	.585
	16	-.070	.205	1.000	-.919	.779
	17	-.175	.211	1.000	-1.051	.700
	18	-.719	.184	.106	-1.481	.042
	19	-.474	.213	1.000	-1.355	.408
	20	-.684 <sup>+</sup>	.164	.048	-1.366	-.002
	21	-.544	.189	1.000	-1.328	.241
	22	.596	.192	1.000	-.200	1.393
	23	-.228	.166	1.000	-.917	.461
	24	.193	.231	1.000	-.767	1.153
	25	-.105	.201	1.000	-.940	.730
	26	.105	.254	1.000	-.947	1.157
	27	-.561	.206	1.000	-1.418	.295

	28	- .719	.187	.134	-1.495	.056
	29	.930	.195	.006	.120	1.740
	30	-.053	.171	1.000	-.760	.655
5	1	-.667	.204	.801	-1.512	.179
	2	-.702	.194	.276	-1.506	.102
	3	-.246	.189	1.000	-1.031	.540
	4	.404	.226	1.000	-.536	1.343
	6	-.456	.182	1.000	-1.213	.300
	7	-.351	.203	1.000	-1.191	.489
	8	-.421	.203	1.000	-1.264	.422
	9	.351	.206	1.000	-.502	1.204
	10	-.491	.189	1.000	-1.276	.294
	11	-.491	.181	1.000	-1.241	.258
	12	-.316	.217	1.000	-1.216	.584
	13	-.404	.203	1.000	-1.246	.439
	14	-.333	.191	1.000	-1.126	.460
	15	-.018	.213	1.000	-.902	.866
	16	.333	.231	1.000	-.626	1.292
	17	.228	.189	1.000	-.556	1.012
	18	-.316	.197	1.000	-1.134	.503
	19	-.070	.226	1.000	-1.010	.869
	20	-.281	.193	1.000	-1.083	.522
	21	-.140	.201	1.000	-.974	.693
	22	1.000	.264	.160	-.094	2.094
	23	.175	.214	1.000	-.712	1.063
	24	.596	.164	.259	-.083	1.276
	25	.298	.197	1.000	-.519	1.116
	26	.509	.150	.574	-.115	1.133
	27	-.158	.158	1.000	-.813	.497
	28	-.316	.176	1.000	-1.044	.412

	29	1.333 <sup>+</sup>	.188	.000	.554	2.113
	30	.351	.216	1.000	-.545	1.247
6	1	-.211	.105	1.000	-.648	.227
	2	-.246	.088	1.000	-.609	.118
	3	.211	.122	1.000	-.295	.716
	4	.860 <sup>+</sup>	.178	.005	.122	1.597
	5	.456	.182	1.000	-.300	1.213
	7	.105	.099	1.000	-.306	.516
	8	.035	.100	1.000	-.380	.450
	9	.807 <sup>+</sup>	.163	.003	.131	1.483
	10	-.035	.097	1.000	-.437	.367
	11	-.035	.103	1.000	-.463	.393
	12	.140	.136	1.000	-.423	.704
	13	.053	.116	1.000	-.428	.533
	14	.123	.150	1.000	-.501	.746
	15	.439	.200	1.000	-.392	1.269
	16	.789 <sup>+</sup>	.145	.001	.186	1.393
	17	.684 <sup>+</sup>	.157	.024	.034	1.334
	18	.140	.105	1.000	-.293	.574
	19	.386	.143	1.000	-.208	.980
	20	.175	.104	1.000	-.254	.605
	21	.316	.135	1.000	-.245	.876
	22	1.456 <sup>+</sup>	.186	.000	.686	2.227
	23	.632 <sup>+</sup>	.132	.005	.086	1.177
	24	1.053 <sup>+</sup>	.204	.001	.206	1.899
	25	.754 <sup>+</sup>	.135	.000	.193	1.316
	26	.965 <sup>+</sup>	.209	.010	.096	1.833
	27	.298	.158	1.000	-.358	.955
	28	.140	.110	1.000	-.317	.598
	29	1.789 <sup>+</sup>	.211	.000	.916	2.663

	30	.807 <sup>+</sup>	.149	.001	.189	1.425
7	1	-.316	.112	1.000	-.782	.150
	2	-.351	.108	.826	-.797	.096
	3	.105	.134	1.000	-.451	.661
	4	.754	.183	.053	-.004	1.512
	5	.351	.203	1.000	-.489	1.191
	6	-.105	.099	1.000	-.516	.306
	8	-.070	.090	1.000	-.443	.302
	9	.702	.172	.060	-.010	1.413
	10	-.140	.107	1.000	-.586	.306
	11	-.140	.101	1.000	-.561	.281
	12	.035	.162	1.000	-.638	.708
	13	-.053	.121	1.000	-.555	.450
	14	.018	.147	1.000	-.592	.627
	15	.333	.217	1.000	-.568	1.235
	16	.684 <sup>+</sup>	.151	.013	.060	1.309
	17	.579	.141	.060	-.008	1.166
	18	.035	.123	1.000	-.473	.543
	19	.281	.150	1.000	-.340	.902
	20	.070	.127	1.000	-.458	.598
	21	.211	.127	1.000	-.316	.737
	22	1.351 <sup>+</sup>	.198	.000	.530	2.172
	23	.526	.133	.091	-.024	1.077
	24	.947 <sup>+</sup>	.204	.009	.101	1.794
	25	.649 <sup>+</sup>	.124	.001	.135	1.163
	26	.860	.210	.060	-.012	1.731
	27	.193	.153	1.000	-.442	.828
	28	.035	.112	1.000	-.429	.499
	29	1.684 <sup>+</sup>	.230	.000	.732	2.637
	30	.702 <sup>+</sup>	.150	.008	.079	1.324



8	1	-.246	.084	1.000	-.594	.103
	2	-.281	.078	.303	-.605	.044
	3	.175	.137	1.000	-.394	.745
	4	.825 <sup>+</sup>	.194	.036	.019	1.630
	5	.421	.203	1.000	-.422	1.264
	6	-.035	.100	1.000	-.450	.380
	7	.070	.090	1.000	-.302	.443
	9	.772 <sup>+</sup>	.172	.015	.060	1.484
	10	-.070	.100	1.000	-.484	.343
	11	-.070	.096	1.000	-.470	.330
	12	.105	.150	1.000	-.515	.726
	13	.018	.119	1.000	-.475	.510
	14	.088	.144	1.000	-.511	.687
	15	.404	.198	1.000	-.420	1.227
	16	.754 <sup>+</sup>	.135	.000	.193	1.316
	17	.649	.157	.054	-.003	1.302
	18	.105	.111	1.000	-.355	.566
	19	.351	.143	1.000	-.241	.943
	20	.140	.119	1.000	-.351	.632
	21	.281	.143	1.000	-.314	.875
	22	1.421 <sup>+</sup>	.214	.000	.534	2.308
	23	.596 <sup>+</sup>	.137	.024	.029	1.164
	24	1.018 <sup>+</sup>	.209	.004	.152	1.883
	25	.719 <sup>+</sup>	.141	.002	.134	1.304
	26	.930 <sup>+</sup>	.214	.025	.044	1.816
	27	.263	.151	1.000	-.364	.891
	28	.105	.114	1.000	-.367	.577
	29	1.754 <sup>+</sup>	.228	.000	.807	2.702
	30	.772 <sup>+</sup>	.156	.003	.123	1.421
9	1	-1.018	.165	.000	-1.702	-.333

	2	-1.053 <sup>*</sup>	.161	.000	-1.721	-.384
	3	-.596 <sup>*</sup>	.125	.006	-1.114	-.079
	4	.053	.185	1.000	-.713	.819
	5	-.351	.206	1.000	-1.204	.502
	6	-.807 <sup>*</sup>	.163	.003	-1.483	-.131
	7	-.702	.172	.060	-1.413	.010
	8	-.772 <sup>*</sup>	.172	.015	-1.484	-.060
	10	-.842 <sup>*</sup>	.148	.000	-1.455	-.230
	11	-.842 <sup>*</sup>	.148	.000	-1.455	-.230
	12	-.667	.186	.312	-1.439	.106
	13	-.754 <sup>*</sup>	.174	.026	-1.476	-.033
	14	-.684	.183	.184	-1.441	.073
	15	-.368	.245	1.000	-1.384	.647
	16	-.018	.155	1.000	-.662	.627
	17	-.123	.177	1.000	-.858	.612
	18	-.667 <sup>*</sup>	.155	.030	-1.310	-.024
	19	-.421	.202	1.000	-1.258	.416
	20	-.632	.175	.278	-1.356	.093
	21	-.491	.181	1.000	-1.241	.258
	22	.649	.226	1.000	-.288	1.586
	23	-.175	.148	1.000	-.791	.440
	24	.246	.176	1.000	-.483	.975
	25	-.053	.159	1.000	-.713	.608
	26	.158	.216	1.000	-.740	1.056
	27	-.509	.170	1.000	-1.214	.196
	28	-.667	.186	.312	-1.439	.106
	29	.982 <sup>*</sup>	.210	.008	.111	1.854
	30	.000	.135	1.000	-.559	.559
10	1	-.175	.091	1.000	-.552	.201
	2	-.211	.078	1.000	-.535	.113

	3	.246	.113	1.000	-.222	.713
	4	.895 <sup>+</sup>	.188	.006	.113	1.676
	5	.491	.189	1.000	-.294	1.276
	6	.035	.097	1.000	-.367	.437
	7	.140	.107	1.000	-.306	.586
	8	.070	.100	1.000	-.343	.484
	9	.842 <sup>+</sup>	.148	.000	.230	1.455
	11	.000	.083	1.000	-.344	.344
	12	.175	.140	1.000	-.404	.755
	13	.088	.128	1.000	-.445	.620
	14	.158	.152	1.000	-.472	.788
	15	.474	.202	1.000	-.364	1.311
	16	.825 <sup>+</sup>	.128	.000	.294	1.355
	17	.719 <sup>+</sup>	.160	.015	.056	1.382
	18	.175	.091	1.000	-.201	.552
	19	.421	.137	1.000	-.147	.989
	20	.211	.111	1.000	-.251	.672
	21	.351	.134	1.000	-.203	.905
	22	1.491 <sup>+</sup>	.194	.000	.686	2.296
	23	.667 <sup>+</sup>	.131	.002	.124	1.210
	24	1.088 <sup>+</sup>	.188	.000	.309	1.867
	25	.789 <sup>+</sup>	.134	.000	.233	1.346
	26	1.000 <sup>+</sup>	.203	.003	.156	1.844
	27	.333	.149	1.000	-.284	.951
	28	.175	.135	1.000	-.385	.736
	29	1.825 <sup>+</sup>	.220	.000	.913	2.736
	30	.842 <sup>+</sup>	.152	.000	.212	1.472
11	1	-.175	.087	1.000	-.537	.186
	2	-.211	.078	1.000	-.535	.113
	3	.246	.104	1.000	-.186	.677

	4	.895 <sup>+</sup>	.167	.001	.201	1.589
	5	.491	.181	1.000	-.258	1.241
	6	.035	.103	1.000	-.393	.463
	7	.140	.101	1.000	-.281	.561
	8	.070	.096	1.000	-.330	.470
	9	.842 <sup>+</sup>	.148	.000	.230	1.455
	10	.000	.083	1.000	-.344	.344
	12	.175	.125	1.000	-.345	.696
	13	.088	.107	1.000	-.356	.532
	14	.158	.127	1.000	-.369	.685
	15	.474	.182	1.000	-.283	1.230
	16	.825 <sup>+</sup>	.130	.000	.284	1.365
	17	.719 <sup>+</sup>	.143	.002	.125	1.314
	18	.175	.087	1.000	-.186	.537
	19	.421	.139	1.000	-.157	.999
	20	.211	.108	1.000	-.239	.660
	21	.351	.116	1.000	-.130	.832
	22	1.491 <sup>+</sup>	.188	.000	.713	2.269
	23	.667 <sup>+</sup>	.116	.000	.187	1.146
	24	1.088 <sup>+</sup>	.174	.000	.366	1.809
	25	.789 <sup>+</sup>	.122	.000	.284	1.295
	26	1.000 <sup>+</sup>	.186	.001	.230	1.770
	27	.333	.126	1.000	-.189	.856
	28	.175	.128	1.000	-.355	.706
	29	1.825 <sup>+</sup>	.208	.000	.961	2.688
	30	.842 <sup>+</sup>	.148	.000	.230	1.455
12	1	-.351	.140	1.000	-.934	.232
	2	-.386	.127	1.000	-.913	.141
	3	.070	.141	1.000	-.516	.656
	4	.719	.187	.134	-.056	1.495

	5	.316	.217	1.000	-.584	1.216
	6	-.140	.136	1.000	-.704	.423
	7	-.035	.162	1.000	-.708	.638
	8	-.105	.150	1.000	-.726	.515
	9	.667	.186	.312	-.106	1.439
	10	-.175	.140	1.000	-.755	.404
	11	-.175	.125	1.000	-.696	.345
	13	-.088	.133	1.000	-.640	.464
	14	-.018	.159	1.000	-.678	.643
	15	.298	.206	1.000	-.558	1.154
	16	.649 <sup>~</sup>	.151	.031	.022	1.276
	17	.544	.194	1.000	-.261	1.349
	18	.000	.148	1.000	-.614	.614
	19	.246	.163	1.000	-.430	.921
	20	.035	.120	1.000	-.462	.533
	21	.175	.148	1.000	-.440	.791
	22	1.316 <sup>~</sup>	.200	.000	.484	2.147
	23	.491	.161	1.000	-.175	1.157
	24	.912	.233	.105	-.052	1.877
	25	.614	.166	.209	-.073	1.301
	26	.825	.239	.465	-.167	1.816
	27	.158	.175	1.000	-.567	.883
	28	.000	.160	1.000	-.665	.665
	29	1.649 <sup>~</sup>	.204	.000	.802	2.496
	30	.667	.172	.124	-.048	1.381
13	1	-.263	.119	1.000	-.756	.230
	2	-.298	.109	1.000	-.750	.154
	3	.158	.137	1.000	-.409	.725
	4	.807 <sup>~</sup>	.176	.011	.077	1.537
	5	.404	.203	1.000	-.439	1.246

	6	-.053	.116	1.000	-.533	.428
	7	.053	.121	1.000	-.450	.555
	8	-.018	.119	1.000	-.510	.475
	9	.754 <sup>+</sup>	.174	.026	.033	1.476
	10	-.088	.128	1.000	-.620	.445
	11	-.088	.107	1.000	-.532	.356
	12	.088	.133	1.000	-.464	.640
	14	.070	.154	1.000	-.569	.709
	15	.386	.208	1.000	-.475	1.247
	16	.737 <sup>+</sup>	.145	.002	.136	1.338
	17	.632	.171	.218	-.077	1.341
	18	.088	.123	1.000	-.424	.599
	19	.333	.161	1.000	-.334	1.001
	20	.123	.118	1.000	-.365	.611
	21	.263	.149	1.000	-.356	.882
	22	1.404 <sup>+</sup>	.187	.000	.627	2.180
	23	.579 <sup>+</sup>	.128	.013	.050	1.108
	24	1.000 <sup>+</sup>	.217	.010	.101	1.899
	25	.702 <sup>+</sup>	.148	.007	.088	1.316
	26	.912	.220	.050	.000	1.825
	27	.246	.153	1.000	-.388	.880
	28	.088	.131	1.000	-.455	.630
	29	1.737 <sup>+</sup>	.203	.000	.896	2.577
	30	.754 <sup>+</sup>	.161	.008	.087	1.422
14	1	-.333	.140	1.000	-.915	.248
	2	-.368	.134	1.000	-.924	.187
	3	.088	.147	1.000	-.520	.696
	4	.737 <sup>+</sup>	.169	.024	.036	1.437
	5	.333	.191	1.000	-.460	1.126
	6	-.123	.150	1.000	-.746	.501

	7	-.018	.147	1.000	-.627	.592
	8	-.088	.144	1.000	-.687	.511
	9	.684	.183	.184	-.073	1.441
	10	-.158	.152	1.000	-.788	.472
	11	-.158	.127	1.000	-.685	.369
	12	.018	.159	1.000	-.643	.678
	13	-.070	.154	1.000	-.709	.569
	15	.316	.172	1.000	-.397	1.029
	16	.667	.174	.141	-.055	1.389
	17	.561	.142	.092	-.026	1.149
	18	.018	.136	1.000	-.546	.581
	19	.263	.180	1.000	-.482	1.008
	20	.053	.147	1.000	-.557	.662
	21	.193	.136	1.000	-.370	.756
	22	1.333 <sup>~</sup>	.220	.000	.420	2.246
	23	.509	.162	1.000	-.165	1.183
	24	.930 <sup>~</sup>	.187	.003	.154	1.706
	25	.632	.162	.109	-.038	1.302
	26	.842 <sup>~</sup>	.200	.040	.013	1.671
	27	.175	.140	1.000	-.404	.755
	28	.018	.116	1.000	-.464	.499
	29	1.667 <sup>~</sup>	.205	.000	.815	2.519
	30	.684	.181	.164	-.066	1.434
15	1	-.649	.188	.466	-1.430	.131
	2	-.684	.183	.184	-1.441	.073
	3	-.228	.206	1.000	-1.084	.628
	4	.421	.243	1.000	-.585	1.427
	5	.018	.213	1.000	-.866	.902
	6	-.439	.200	1.000	-1.269	.392
	7	-.333	.217	1.000	-1.235	.568

	8	-.404	.198	1.000	-1.227	.420
	9	.368	.245	1.000	-.647	1.384
	10	-.474	.202	1.000	-1.311	.364
	11	-.474	.182	1.000	-1.230	.283
	12	-.298	.206	1.000	-1.154	.558
	13	-.386	.208	1.000	-1.247	.475
	14	-.316	.172	1.000	-1.029	.397
	16	.351	.242	1.000	-.653	1.355
	17	.246	.224	1.000	-.685	1.176
	18	-.298	.206	1.000	-1.154	.558
	19	-.053	.214	1.000	-.942	.837
	20	-.263	.219	1.000	-1.171	.645
	21	-.123	.230	1.000	-1.075	.829
	22	1.018	.256	.088	-.044	2.079
	23	.193	.233	1.000	-.772	1.158
	24	.614	.244	1.000	-.397	1.625
	25	.316	.238	1.000	-.670	1.302
	26	.526	.210	1.000	-.343	1.396
	27	-.140	.186	1.000	-.913	.633
	28	-.298	.192	1.000	-1.096	.499
	29	1.351 <sup>+</sup>	.235	.000	.374	2.328
	30	.368	.245	1.000	-.647	1.384
16	1	-1.000	.135	.000	-1.559	-.441
	2	-1.035 <sup>+</sup>	.130	.000	-1.574	-.496
	3	-.579 <sup>+</sup>	.139	.048	-1.157	-.001
	4	.070	.205	1.000	-.779	.919
	5	-.333	.231	1.000	-1.292	.626
	6	-.789 <sup>+</sup>	.145	.001	-1.393	-.186
	7	-.684 <sup>+</sup>	.151	.013	-1.309	-.060
	8	-.754 <sup>+</sup>	.135	.000	-1.316	-.193



	9	.018	.155	1.000	-.627	.662
	10	-.825 <sup>+</sup>	.128	.000	-1.355	-.294
	11	-.825 <sup>+</sup>	.130	.000	-1.365	-.284
	12	-.649 <sup>+</sup>	.151	.031	-1.276	-.022
	13	-.737 <sup>+</sup>	.145	.002	-1.338	-.136
	14	-.667	.174	.141	-1.389	.055
	15	-.351	.242	1.000	-1.355	.653
	17	-.105	.185	1.000	-.873	.663
	18	-.649 <sup>+</sup>	.134	.004	-1.203	-.095
	19	-.404	.175	1.000	-1.129	.322
	20	-.614	.150	.058	-1.235	.007
	21	-.474	.144	.758	-1.071	.124
	22	.667	.202	.744	-.173	1.506
	23	-.158	.154	1.000	-.796	.480
	24	.263	.198	1.000	-.558	1.084
	25	-.035	.137	1.000	-.603	.533
	26	.175	.228	1.000	-.771	1.122
	27	-.491	.177	1.000	-1.226	.244
	28	-.649	.171	.154	-1.357	.059
	29	1.000 <sup>+</sup>	.221	.014	.083	1.917
	30	.018	.140	1.000	-.565	.600
17	1	-.895 <sup>+</sup>	.158	.000	-1.549	-.241
	2	-.930 <sup>+</sup>	.156	.000	-1.577	-.283
	3	-.474	.168	1.000	-1.171	.224
	4	.175	.211	1.000	-.700	1.051
	5	-.228	.189	1.000	-1.012	.556
	6	-.684 <sup>+</sup>	.157	.024	-1.334	-.034
	7	-.579	.141	.060	-1.166	.008
	8	-.649	.157	.054	-1.302	.003
	9	.123	.177	1.000	-.612	.858

	10	-.719 <sup>*</sup>	.160	.015	-1.382	-.056
	11	-.719 <sup>*</sup>	.143	.002	-1.314	-.125
	12	-.544	.194	1.000	-1.349	.261
	13	-.632	.171	.218	-1.341	.077
	14	-.561	.142	.092	-1.149	.026
	15	-.246	.224	1.000	-1.176	.685
	16	.105	.185	1.000	-.663	.873
	18	-.544	.150	.278	-1.167	.080
	19	-.298	.194	1.000	-1.102	.506
	20	-.509	.179	1.000	-1.251	.234
	21	-.368	.158	1.000	-1.022	.285
	22	.772	.245	1.000	-.246	1.789
	23	-.053	.153	1.000	-.688	.583
	24	.368	.165	1.000	-.317	1.054
	25	.070	.162	1.000	-.602	.742
	26	.281	.187	1.000	-.495	1.056
	27	-.386	.141	1.000	-.971	.199
	28	-.544	.142	.139	-1.132	.044
	29	1.105 <sup>*</sup>	.229	.005	.155	2.055
	30	.123	.187	1.000	-.655	.900
18	1	-.351	.116	1.000	-.832	.130
	2	-.386	.099	.119	-.798	.026
	3	.070	.125	1.000	-.448	.588
	4	.719	.184	.106	-.042	1.481
	5	.316	.197	1.000	-.503	1.134
	6	-.140	.105	1.000	-.574	.293
	7	-.035	.123	1.000	-.543	.473
	8	-.105	.111	1.000	-.566	.355
	9	.667 <sup>*</sup>	.155	.030	.024	1.310
	10	-.175	.091	1.000	-.552	.201

	11	-.175	.087	1.000	-.537	.186
	12	.000	.148	1.000	-.614	.614
	13	-.088	.123	1.000	-.599	.424
	14	-.018	.136	1.000	-.581	.546
	15	.298	.206	1.000	-.558	1.154
	16	.649 <sup>+</sup>	.134	.004	.095	1.203
	17	.544	.150	.278	-.080	1.167
	19	.246	.153	1.000	-.388	.880
	20	.035	.120	1.000	-.462	.533
	21	.175	.118	1.000	-.313	.664
	22	1.316 <sup>+</sup>	.205	.000	.465	2.167
	23	.491	.125	.108	-.029	1.012
	24	.912 <sup>+</sup>	.179	.002	.169	1.656
	25	.614 <sup>+</sup>	.134	.012	.057	1.171
	26	.825 <sup>+</sup>	.194	.036	.019	1.630
	27	.158	.146	1.000	-.446	.761
	28	.000	.139	1.000	-.578	.578
	29	1.649 <sup>+</sup>	.216	.000	.753	2.545
	30	.667	.163	.060	-.009	1.342
19	1	-.596	.150	.087	-1.218	.025
	2	-.632 <sup>+</sup>	.136	.009	-1.197	-.066
	3	-.175	.172	1.000	-.888	.537
	4	.474	.213	1.000	-.408	1.355
	5	.070	.226	1.000	-.869	1.010
	6	-.386	.143	1.000	-.980	.208
	7	-.281	.150	1.000	-.902	.340
	8	-.351	.143	1.000	-.943	.241
	9	.421	.202	1.000	-.416	1.258
	10	-.421	.137	1.000	-.989	.147
	11	-.421	.139	1.000	-.999	.157

	12	-246	.163	1.000	-.921	.430
	13	-.333	.161	1.000	-1.001	.334
	14	-.263	.180	1.000	-1.008	.482
	15	.053	.214	1.000	-.837	.942
	16	.404	.175	1.000	-.322	1.129
	17	.298	.194	1.000	-.506	1.102
	18	-.246	.153	1.000	-.880	.388
	20	-.211	.145	1.000	-.814	.393
	21	-.070	.146	1.000	-.674	.534
	22	1.070	.168	.000	.375	1.766
	23	.246	.161	1.000	-.422	.913
	24	.667	.247	1.000	-.358	1.691
	25	.368	.188	1.000	-.413	1.150
	26	.579	.232	1.000	-.384	1.542
	27	-.088	.184	1.000	-.853	.677
	28	-.246	.153	1.000	-.880	.388
	29	1.404	.248	.000	.376	2.431
	30	.421	.194	1.000	-.383	1.225
20	1	-.386	.132	1.000	-.933	.161
	2	-.421	.117	.303	-.907	.065
	3	.035	.115	1.000	-.440	.511
	4	.684	.164	.048	.002	1.366
	5	.281	.193	1.000	-.522	1.083
	6	-.175	.104	1.000	-.605	.254
	7	-.070	.127	1.000	-.598	.458
	8	-.140	.119	1.000	-.632	.351
	9	.632	.175	.278	-.093	1.356
	10	-.211	.111	1.000	-.672	.251
	11	-.211	.108	1.000	-.660	.239
	12	-.035	.120	1.000	-.533	.462

	13		-.123	.118	1.000	-.611	.365
	14		-.053	.147	1.000	-.662	.557
	15		.263	.219	1.000	-.645	1.171
	16		.614	.150	.058	-.007	1.235
	17		.509	.179	1.000	-.234	1.251
	18		-.035	.120	1.000	-.533	.462
	19		.211	.145	1.000	-.393	.814
	21		.140	.138	1.000	-.433	.713
	22		1.281 <sup>+</sup>	.182	.000	.527	2.035
	23		.456	.140	.803	-.123	1.035
	24		.877	.215	.064	-.016	1.771
	25		.579	.146	.090	-.026	1.184
	26		.789	.221	.315	-.126	1.705
	27		.123	.175	1.000	-.605	.850
	28		-.035	.135	1.000	-.594	.524
	29		1.614 <sup>+</sup>	.206	.000	.759	2.469
	30		.632	.160	.094	-.030	1.293
21	1		-.526	.148	.344	-1.142	.089
	2		-.561	.137	.060	-1.130	.007
	3		-.105	.156	1.000	-.751	.541
	4		.544	.189	1.000	-.241	1.328
	5		.140	.201	1.000	-.693	.974
	6		-.316	.135	1.000	-.876	.245
	7		-.211	.127	1.000	-.737	.316
	8		-.281	.143	1.000	-.875	.314
	9		.491	.181	1.000	-.258	1.241
	10		-.351	.134	1.000	-.905	.203
	11		-.351	.116	1.000	-.832	.130
	12		-.175	.148	1.000	-.791	.440
	13		-.263	.149	1.000	-.882	.356

	14	-.193	.136	1.000	-.756	.370
	15	.123	.230	1.000	-.829	1.075
	16	.474	.144	.758	-.124	1.071
	17	.368	.158	1.000	-.285	1.022
	18	-.175	.118	1.000	-.664	.313
	19	.070	.146	1.000	-.534	.674
	20	-.140	.138	1.000	-.713	.433
	22	1.140 <sup>+</sup>	.201	.000	.307	1.974
	23	.316	.146	1.000	-.291	.923
	24	.737	.206	.310	-.116	1.590
	25	.439	.132	.711	-.111	.988
	26	.649	.209	1.000	-.216	1.515
	27	-.018	.155	1.000	-.662	.627
	28	-.175	.150	1.000	-.799	.449
	29	1.474 <sup>+</sup>	.220	.000	.562	2.385
	30	.491	.164	1.000	-.191	1.173
22	1	-1.667 <sup>+</sup>	.199	.000	-2.493	-.840
	2	-1.702 <sup>+</sup>	.194	.000	-2.506	-.898
	3	-1.246 <sup>+</sup>	.194	.000	-2.052	-.439
	4	-.596	.192	1.000	-1.393	.200
	5	-1.000	.264	.160	-2.094	.094
	6	-1.456 <sup>+</sup>	.186	.000	-2.227	-.686
	7	-1.351 <sup>+</sup>	.198	.000	-2.172	-.530
	8	-1.421 <sup>+</sup>	.214	.000	-2.308	-.534
	9	-.649	.226	1.000	-1.586	.288
	10	-1.491 <sup>+</sup>	.194	.000	-2.296	-.686
	11	-1.491 <sup>+</sup>	.188	.000	-2.269	-.713
	12	-1.316 <sup>+</sup>	.200	.000	-2.147	-.484
	13	-1.404 <sup>+</sup>	.187	.000	-2.180	-.627
	14	-1.333 <sup>+</sup>	.220	.000	-2.246	-.420

	15	-1.018	.256	.088	-2.079	.044
	16	-.667	.202	.744	-1.506	.173
	17	-.772	.245	1.000	-1.789	.246
	18	-1.316 <sup>+</sup>	.205	.000	-2.167	-.465
	19	-1.070 <sup>+</sup>	.168	.000	-1.766	-.375
	20	-1.281 <sup>+</sup>	.182	.000	-2.035	-.527
	21	-1.140 <sup>+</sup>	.201	.000	-1.974	-.307
	23	-.825 <sup>+</sup>	.177	.009	-1.560	-.089
	24	-.404	.275	1.000	-1.545	.738
	25	-.702	.225	1.000	-1.636	.233
	26	-.491	.289	1.000	-1.689	.707
	27	-1.158 <sup>+</sup>	.245	.007	-2.174	-.142
	28	-1.316 <sup>+</sup>	.217	.000	-2.216	-.416
	29	.333	.275	1.000	-.806	1.472
	30	-.649	.220	1.000	-1.563	.265
23	1	-.842	.134	.000	-1.399	-.285
	2	-.877 <sup>+</sup>	.130	.000	-1.417	-.337
	3	-.421	.135	1.000	-.980	.138
	4	.228	.166	1.000	-.461	.917
	5	-.175	.214	1.000	-1.063	.712
	6	-.632 <sup>+</sup>	.132	.005	-1.177	-.086
	7	-.526	.133	.091	-1.077	.024
	8	-.596 <sup>+</sup>	.137	.024	-1.164	-.029
	9	.175	.148	1.000	-.440	.791
	10	-.667 <sup>+</sup>	.131	.002	-1.210	-.124
	11	-.667 <sup>+</sup>	.116	.000	-1.146	-.187
	12	-.491	.161	1.000	-1.157	.175
	13	-.579 <sup>+</sup>	.128	.013	-1.108	-.050
	14	-.509	.162	1.000	-1.183	.165
	15	-.193	.233	1.000	-1.158	.772

	16	.158	.154	1.000	-.480	.796
	17	.053	.153	1.000	-.583	.688
	18	-.491	.125	.108	-1.012	.029
	19	-.246	.161	1.000	-.913	.422
	20	-.456	.140	.803	-1.035	.123
	21	-.316	.146	1.000	-.923	.291
	22	.825 <sup>+</sup>	.177	.009	.089	1.560
	24	.421	.208	1.000	-.441	1.283
	25	.123	.146	1.000	-.483	.729
	26	.333	.220	1.000	-.580	1.246
	27	-.333	.163	1.000	-1.009	.342
	28	-.491	.155	1.000	-1.132	.150
	29	1.158 <sup>+</sup>	.229	.002	.207	2.108
	30	.175	.142	1.000	-.413	.764
24	1	-1.263 <sup>+</sup>	.195	.000	-2.071	-.455
	2	-1.298 <sup>+</sup>	.192	.000	-2.096	-.501
	3	-.842 <sup>+</sup>	.184	.011	-1.604	-.081
	4	-.193	.231	1.000	-1.153	.767
	5	-.596	.164	.259	-1.276	.083
	6	-1.053 <sup>+</sup>	.204	.001	-1.899	-.206
	7	-.947 <sup>+</sup>	.204	.009	-1.794	-.101
	8	-1.018 <sup>+</sup>	.209	.004	-1.883	-.152
	9	-.246	.176	1.000	-.975	.483
	10	-1.088 <sup>+</sup>	.188	.000	-1.867	-.309
	11	-1.088 <sup>+</sup>	.174	.000	-1.809	-.366
	12	-.912	.233	.105	-1.877	.052
	13	-1.000 <sup>+</sup>	.217	.010	-1.899	-.101
	14	-.930 <sup>+</sup>	.187	.003	-1.706	-.154
	15	-.614	.244	1.000	-1.625	.397
	16	-.263	.198	1.000	-1.084	.558



	17	-.368	.165	1.000	-1.054	.317
	18	-.912 <sup>+</sup>	.179	.002	-1.656	-.169
	19	-.667	.247	1.000	-1.691	.358
	20	-.877	.215	.064	-1.771	.016
	21	-.737	.206	.310	-1.590	.116
	22	.404	.275	1.000	-.738	1.545
	23	-.421	.208	1.000	-1.283	.441
	25	-.298	.179	1.000	-1.039	.443
	26	-.088	.142	1.000	-.678	.502
	27	-.754 <sup>+</sup>	.165	.011	-1.437	-.071
	28	-.912 <sup>+</sup>	.202	.015	-1.751	-.073
	29	.737	.215	.491	-.153	1.627
	30	-.246	.216	1.000	-1.141	.649
25	1	-.965 <sup>+</sup>	.142	.000	-1.552	-.378
	2	-1.000 <sup>+</sup>	.135	.000	-1.559	-.441
	3	-.544	.135	.074	-1.104	.016
	4	.105	.201	1.000	-.730	.940
	5	-.298	.197	1.000	-1.116	.519
	6	-.754 <sup>+</sup>	.135	.000	-1.316	-.193
	7	-.649 <sup>+</sup>	.124	.001	-1.163	-.135
	8	-.719 <sup>+</sup>	.141	.002	-1.304	-.134
	9	.053	.159	1.000	-.608	.713
	10	-.789 <sup>+</sup>	.134	.000	-1.346	-.233
	11	-.789 <sup>+</sup>	.122	.000	-1.295	-.284
	12	-.614	.166	.209	-1.301	.073
	13	-.702 <sup>+</sup>	.148	.007	-1.316	-.088
	14	-.632	.162	.109	-1.302	.038
	15	-.316	.238	1.000	-1.302	.670
	16	.035	.137	1.000	-.533	.603
	17	-.070	.162	1.000	-.742	.602

	18	-.614 <sup>+</sup>	.134	.012	-1.171	-.057
	19	-.368	.188	1.000	-1.150	.413
	20	-.579	.146	.090	-1.184	.026
	21	-.439	.132	.711	-.988	.111
	22	.702	.225	1.000	-.233	1.636
	23	-.123	.146	1.000	-.729	.483
	24	.298	.179	1.000	-.443	1.039
	26	.211	.204	1.000	-.638	1.059
	27	-.456	.175	1.000	-1.183	.271
	28	-.614	.156	.099	-1.260	.032
	29	1.035 <sup>+</sup>	.227	.012	.095	1.975
	30	.053	.151	1.000	-.574	.679
26	1	-1.175 <sup>+</sup>	.208	.000	-2.039	-.312
	2	-1.211 <sup>+</sup>	.201	.000	-2.046	-.375
	3	-.754	.208	.275	-1.619	.110
	4	-.105	.254	1.000	-1.157	.947
	5	-.509	.150	.574	-1.133	.115
	6	-.965 <sup>+</sup>	.209	.010	-1.833	-.096
	7	-.860	.210	.060	-1.731	.012
	8	-.930 <sup>+</sup>	.214	.025	-1.816	-.044
	9	-.158	.216	1.000	-1.056	.740
	10	-1.000 <sup>+</sup>	.203	.003	-1.844	-.156
	11	-1.000 <sup>+</sup>	.186	.001	-1.770	-.230
	12	-.825	.239	.465	-1.816	.167
	13	-.912	.220	.050	-1.825	.000
	14	-.842 <sup>+</sup>	.200	.040	-1.671	-.013
	15	-.526	.210	1.000	-1.396	.343
	16	-.175	.228	1.000	-1.122	.771
	17	-.281	.187	1.000	-1.056	.495
	18	-.825 <sup>+</sup>	.194	.036	-1.630	-.019

	19		-.579	.232	1.000	-1.542	.384
	20		-.789	.221	.315	-1.705	.126
	21		-.649	.209	1.000	-1.515	.216
	22		.491	.289	1.000	-.707	1.689
	23		-.333	.220	1.000	-1.246	.580
	24		.088	.142	1.000	-.502	.678
	25		-.211	.204	1.000	-1.059	.638
	27		-.667	.161	.051	-1.334	.001
	28		-.825	.197	.045	-1.643	-.006
	29		.825	.208	.092	-.039	1.688
	30		-.158	.233	1.000	-1.125	.809
27	1		-.509	.153	.659	-1.141	.124
	2		-.544	.144	.167	-1.141	.053
	3		-.088	.168	1.000	-.786	.611
	4		.561	.206	1.000	-.295	1.418
	5		.158	.158	1.000	-.497	.813
	6		-.298	.158	1.000	-.955	.358
	7		-.193	.153	1.000	-.828	.442
	8		-.263	.151	1.000	-.891	.364
	9		.509	.170	1.000	-.196	1.214
	10		-.333	.149	1.000	-.951	.284
	11		-.333	.126	1.000	-.856	.189
	12		-.158	.175	1.000	-.883	.567
	13		-.246	.153	1.000	-.880	.388
	14		-.175	.140	1.000	-.755	.404
	15		.140	.186	1.000	-.633	.913
	16		.491	.177	1.000	-.244	1.226
	17		.386	.141	1.000	-.199	.971
	18		-.158	.146	1.000	-.761	.446
	19		.088	.184	1.000	-.677	.853

	20		-.123	.175	1.000	-.850	.605
	21		.018	.155	1.000	-.627	.662
	22		1.158 <sup>*</sup>	.245	.007	.142	2.174
	23		.333	.163	1.000	-.342	1.009
	24		.754 <sup>*</sup>	.165	.011	.071	1.437
	25		.456	.175	1.000	-.271	1.183
	26		.667	.161	.051	-.001	1.334
	28		-.158	.125	1.000	-.675	.359
	29		1.491 <sup>*</sup>	.205	.000	.641	2.342
	30		.509	.188	1.000	-.269	1.287
28	1		-.351	.131	1.000	-.895	.194
	2		-.386	.117	.720	-.870	.098
	3		.070	.150	1.000	-.552	.692
	4		.719	.187	.134	-.056	1.495
	5		.316	.176	1.000	-.412	1.044
	6		-.140	.110	1.000	-.598	.317
	7		-.035	.112	1.000	-.499	.429
	8		-.105	.114	1.000	-.577	.367
	9		.667	.186	.312	-.106	1.439
	10		-.175	.135	1.000	-.736	.385
	11		-.175	.128	1.000	-.706	.355
	12		.000	.160	1.000	-.665	.665
	13		-.088	.131	1.000	-.630	.455
	14		-.018	.116	1.000	-.499	.464
	15		.298	.192	1.000	-.499	1.096
	16		.649	.171	.154	-.059	1.357
	17		.544	.142	.139	-.044	1.132
	18		.000	.139	1.000	-.578	.578
	19		.246	.153	1.000	-.388	.880
	20		.035	.135	1.000	-.524	.594

	21	.175	.150	1.000	-.449	.799
	22	1.316 <sup>+</sup>	.217	.000	.416	2.216
	23	.491	.155	1.000	-.150	1.132
	24	.912 <sup>+</sup>	.202	.015	.073	1.751
	25	.614	.156	.099	-.032	1.260
	26	.825 <sup>+</sup>	.197	.045	.006	1.643
	27	.158	.125	1.000	-.359	.675
	29	1.649 <sup>+</sup>	.209	.000	.784	2.515
	30	.667	.167	.082	-.025	1.358
29	1	-2.000 <sup>+</sup>	.225	.000	-2.934	-1.066
	2	-2.035 <sup>+</sup>	.215	.000	-2.928	-1.142
	3	-1.579 <sup>+</sup>	.192	.000	-2.376	-.782
	4	-.930 <sup>+</sup>	.195	.006	-1.740	-.120
	5	-1.333 <sup>+</sup>	.188	.000	-2.113	-.554
	6	-1.789 <sup>+</sup>	.211	.000	-2.663	-.916
	7	-1.684 <sup>+</sup>	.230	.000	-2.637	-.732
	8	-1.754 <sup>+</sup>	.228	.000	-2.702	-.807
	9	-.982 <sup>+</sup>	.210	.008	-1.854	-.111
	10	-1.825 <sup>+</sup>	.220	.000	-2.736	-.913
	11	-1.825 <sup>+</sup>	.208	.000	-2.688	-.961
	12	-1.649 <sup>+</sup>	.204	.000	-2.496	-.802
	13	-1.737 <sup>+</sup>	.203	.000	-2.577	-.896
	14	-1.667 <sup>+</sup>	.205	.000	-2.519	-.815
	15	-1.351 <sup>+</sup>	.235	.000	-2.328	-.374
	16	-1.000 <sup>+</sup>	.221	.014	-1.917	-.083
	17	-1.105 <sup>+</sup>	.229	.005	-2.055	-.155
	18	-1.649 <sup>+</sup>	.216	.000	-2.545	-.753
	19	-1.404 <sup>+</sup>	.248	.000	-2.431	-.376
	20	-1.614 <sup>+</sup>	.206	.000	-2.469	-.759
	21	-1.474 <sup>+</sup>	.220	.000	-2.385	-.562

	22	- .333	.275	1.000	-1.472	.806
	23	-1.158 <sup>+</sup>	.229	.002	-2.108	-.207
	24	-.737	.215	.491	-1.627	.153
	25	-1.035 <sup>+</sup>	.227	.012	-1.975	-.095
	26	-.825	.208	.092	-1.688	.039
	27	-1.491 <sup>+</sup>	.205	.000	-2.342	-.641
	28	-1.649 <sup>+</sup>	.209	.000	-2.515	-.784
	30	-.982 <sup>+</sup>	.204	.005	-1.829	-.136
30	1	-1.018	.167	.000	-1.710	-.325
	2	-1.053 <sup>+</sup>	.163	.000	-1.729	-.376
	3	-.596 <sup>+</sup>	.132	.014	-1.145	-.048
	4	.053	.171	1.000	-.655	.760
	5	-.351	.216	1.000	-1.247	.545
	6	-.807 <sup>+</sup>	.149	.001	-1.425	-.189
	7	-.702 <sup>+</sup>	.150	.008	-1.324	-.079
	8	-.772 <sup>+</sup>	.156	.003	-1.421	-.123
	9	.000	.135	1.000	-.559	.559
	10	-.842 <sup>+</sup>	.152	.000	-1.472	-.212
	11	-.842 <sup>+</sup>	.148	.000	-1.455	-.230
	12	-.667	.172	.124	-1.381	.048
	13	-.754 <sup>+</sup>	.161	.008	-1.422	-.087
	14	-.684	.181	.164	-1.434	.066
	15	-.368	.245	1.000	-1.384	.647
	16	-.018	.140	1.000	-.600	.565
	17	-.123	.187	1.000	-.900	.655
	18	-.667	.163	.060	-1.342	.009
	19	-.421	.194	1.000	-1.225	.383
	20	-.632	.160	.094	-1.293	.030
	21	-.491	.164	1.000	-1.173	.191

22	.649	.220	1.000	-.265	1.563
23	-.175	.142	1.000	-.764	.413
24	.246	.216	1.000	-.649	1.141
25	-.053	.151	1.000	-.679	.574
26	.158	.233	1.000	-.809	1.125
27	-.509	.188	1.000	-1.287	.269
28	-.667	.167	.082	-1.358	.025
29	.982*	.204	.005	.136	1.829

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

\*. The mean difference is significant at the .05 level.

Notes: 1 = Coca-Cola; 2 = McDonald's; 3 = Red Bull; 4 = Nike Football; 5 = Oreo; 6 = Samsung Mobile; 7 = KFC; 8 = Converse; 9 = PlayStation ; 10 = Starbucks; 11 = Pepsi; 12 = Walmart; 13 = iTunes; 14 = Skype ; 15 = Nutella; 16 = BlackBerry; 17 = NESCAFE; 18 = Subway; 19 = Victoria's Secret; 20 = Amazon.com; 21 = Pizza Hut; 22 = Samsung Mobile USA; 23 = adidas Originals; 24 = Pringles; 25 = Intel; 26 = Skittles; 27 = KitKat; 28 = Dove; 29 = Monster Energy; 30 = Xbox

## APPENDIX D

**Coefficients<sup>a</sup>**

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.957	.270		14.640	.000
	fg	.362	.067	.443	5.395	.000
	ug	.031	.064	.040	.487	.627

a. Dependent Variable: baw

Notes: fg = firm-generated content; ug = user-generated content; baw = brand awareness

**Coefficients<sup>a</sup>**

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.563	.298		5.247	.000
	fg	.363	.074	.343	4.911	.000
	ug	.371	.071	.365	5.226	.000

a. Dependent Variable: bas

Notes: fg = firm-generated content; ug = user-generated content; bas = brand association

**Coefficients<sup>a</sup>**

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.287	.247		9.251	.000
	fg	.376	.061	.426	6.132	.000
	ug	.242	.059	.286	4.117	.000

a. Dependent Variable: bim

Notes: fg = firm-generated content; ug = user-generated content; bim = brand image

**Coefficients<sup>a</sup>**



Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.422	.356		1.186	.237
baw	.026	.062	.019	.416	.678
bas	.448	.059	.436	7.556	.000
bim	.492	.068	.400	7.205	.000

a. Dependent Variable: bat

Notes: baw = brand awareness; bas = brand association; bim = brand image; bat = brand attitude

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.739	.381		7.196	.000
bat	.594	.063	.509	9.486	.000

a. Dependent Variable: PI

Notes: bat = brand attitude; PI = purchase intention

## APPENDIX E

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
1 (Constant)	3.762	.286		13.146	.000			
Hedonic	.091	.047	.121	1.958	.051	.318	.121	.107
Utilitarian	.338	.051	.414	6.676	.000	.472	.384	.364
2 (Constant)	4.868	1.372		3.548	.000			
Hedonic	-1.079	.280	-1.432	-3.847	.000	.318	-.236	-.193
Utilitarian	.977	.263	1.197	3.718	.000	.472	.228	.186
fg	.244	.377	.299	.648	.518	.473	.041	.032
ug	-.272	.349	-.347	-.778	.437	.369	-.049	-.039
fg_hedonic	.227	.058	2.831	3.946	.000	.460	.242	.198
fg_utilitarian	-.199	.064	-2.352	-3.092	.002	.540	-.192	-.155
ug_utilitarian	.067	.065	.782	1.041	.299	.494	.066	.052
ug_hedonic	-.034	.067	-.425	-.503	.616	.400	-.032	-.025

a. Dependent Variable: baw

Notes: Hedonic = hedonic brand, utilitarian = utilitarian brand; fg = firm-generated content; ug = user-generated content; fg\_hedonic = interaction between hedonic brand and firm-generated content; fg\_utilitarian = interaction between utilitarian brand and firm-generated content; ug\_utilitarian = interaction between utilitarian brand and user-generated content; ug\_hedonic = interaction between hedonic brand and user-generated content; baw = brand awareness

Coefficients <sup>a</sup>								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
1 (Constant)	.936	.294		3.182	.002			
Hedonic	.456	.048	.468	9.498	.000	.642	.510	.412
Utilitarian	.389	.052	.368	7.478	.000	.590	.423	.324
2 (Constant)	.353	1.420		.248	.804			
Hedonic	.151	.290	.155	.521	.603	.642	.033	.021
Utilitarian	.428	.272	.405	1.574	.117	.590	.099	.063
fg	-.799	.390	-.756	-2.048	.042	.615	-.128	-.082
ug	1.171	.361	1.154	3.240	.001	.621	.200	.130
fg_hedonic	.082	.060	.789	1.376	.170	.712	.087	.055
fg_utilitarian	.095	.067	.869	1.430	.154	.698	.090	.057
ug_utilitarian	-.125	.067	-1.117	-1.861	.064	.707	-.117	-.074
ug_hedonic	-.053	.069	-.521	-.770	.442	.709	-.049	-.031

a. Dependent Variable: bas

Notes: Hedonic = hedonic brand, utilitarian = utilitarian brand; fg = firm-generated content; ug = user-generated content; fg\_hedonic = interaction between hedonic brand and firm-generated content; fg\_utilitarian = interaction between utilitarian brand and firm-generated content; ug\_utilitarian = interaction between utilitarian brand and user-generated content; ug\_hedonic = interaction between hedonic brand and user-generated content; bas = brand association

Coefficients <sup>a</sup>								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
1 (Constant)	2.020	.253		7.992	.000			
Hedonic	.431	.041	.530	10.450	.000	.657	.546	.466
Utilitarian	.238	.045	.269	5.316	.000	.521	.315	.237
2 (Constant)	3.355	1.211		2.770	.006			

Hedonic	.050	.247	.061	.202	.840	.657	.013	.008
Utilitarian	.029	.232	.033	.127	.899	.521	.008	.005
fg	-.791	.333	-.896	-2.375	.018	.639	-.148	-.097
ug	.786	.308	.928	2.551	.011	.603	.159	.104
fg_hedonic	.075	.051	.864	1.475	.142	.736	.093	.060
fg_utilitarian	.111	.057	1.215	1.958	.051	.680	.123	.080
ug_utilitarian	-.094	.057	-1.004	-1.637	.103	.666	-.103	-.067
ug_hedonic	-.031	.059	-.360	-.521	.603	.713	-.033	-.021

a. Dependent Variable: bim

*Notes: Notes: Hedonic = hedonic brand, utilitarian = utilitarian brand; fg = firm-generated content; ug = user-generated content; fg\_hedonic = interaction between hedonic brand and firm-generated content; fg\_utilitarian = interaction between utilitarian brand and firm-generated content; ug\_utilitarian = interaction between utilitarian brand and user-generated content; ug\_hedonic = interaction between hedonic brand and user-generated content; bim = brand image*

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